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**FINAL REPORT FOR REMEDIATION OF LOCATIONS  
IN GRANITE CITY, MADISON, AND VENICE, ILLINOIS  
ASSOCIATED WITH NL INDUSTRIES/TARACORP  
SUPERFUND SITE**

**PRE-PLACED CONTRACT NO.  
DACA45-96-D-0014  
DELIVERY ORDER NO. 0011**

Submitted by:

**OHM Remediation Services Corp.  
Midwest Region**

Prepared by:

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Project 20366**

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## 1.0 INTRODUCTION

The United States Army Corps of Engineers (USACE) tasked OHM Remediation Services Corp. (OHM), a wholly owned subsidiary of OHM Corporation, under the Pre-Placed Contract No. DACA45-96-D-0014, Delivery Order (DO) No. 0011, to perform remediation of Stack Emission sites at various locations associated with the NL Industries/Taracorp Superfund Site (NL Site) in Granite City, Madison, and Venice, Illinois.

### 1.1 SITE HISTORY

The NL Site includes the NL Industries/Taracorp Plant, a former secondary lead smelting operation located at 16<sup>th</sup> and Cleveland Boulevard in Granite City, Illinois. Prior to 1903, the plant included various smelting related equipment and processes. From 1903 to 1983, secondary lead smelting occurred on site. These activities were discontinued during 1983 and the equipment was dismantled.

In July 1981, St. Louis Lead Recyclers, Inc. (SLLR) began using equipment on adjacent property owned by Trust 454 to separate components of the Taracorp waste pile. The objective was to recycle lead bearing materials to the furnaces at Taracorp and send hard rubber off site for recycling. SLLR continued operations until March 1983 when it shut down its equipment. Residuals from the operation remain on Trust 454 property as does some equipment.

A State Implementation Plan for Granite City, Illinois, was published in September 1983 by the Illinois Environmental Protection Agency (IEPA). The IEPA's report indicated the lead non-attainment problem for air emissions in Granite City, Illinois, were in large part due to emissions associated with the operation of the secondary lead smelter operation by Taracorp and lead reclamation activities conducted by SLLR. The IEPA procured Administrative Orders by Consent with Taracorp, SLLR, Stackorp, Inc., Tri-City Truck Plaza, Inc., and Trust 454 during March 1984. The orders required the implementation of remedial activities relative to air quality.

NL Industries, as former owner of the location, voluntarily entered into an Agreement and Administrative Order by Consent with United States Environmental Protection Agency (USEPA) and IEPA in May 1985 to implement a Remedial Investigation/Feasibility Study (RI/FS) for the location and other potentially affected areas. Taracorp was not a party to the agreement due to the fact it filed for bankruptcy. The USEPA determined the location was a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) facility and it was placed on the National Priorities List on June 19, 1986.

### 1.2 DOCUMENT ORGANIZATION

This final project report is intended to provide a detailed description of the tasks involved in performing the work. Section 2.0 describes the scope of work involved in the preparation of the site-specific plans, performance of site administration/logistical support, mobilization/demobilization, site preparation/teardown, and the operational/technical scope of work performed. Section 2.0 also compares the actual scope of work performed with the planned scope of work in general terms. Section 3.0 describes the technical approaches implemented to accomplish the operational and technical tasks of the project including sampling, analysis, waste transportation, and waste disposal. Section 4.0 describes the Health and Safety

approaches implemented to accomplish the operational tasks of the project. Section 5.0 and 6.0 contain the quantity summary tables and verification analytical summary tables respectively. Appendix A depicts the Flow Charts showing work performance. Appendix B provides detailed descriptions of the work performed at each remedial location, as well as, tables and maps detailing the sampling and analysis.

## 2.0 SCOPE OF WORK

The scope of work for this project was delineated by the documents USACE supplied to OHM entitled: *Scope of Work for Contract DACA45-95-R-0015, Stack Emissions (Lead) Removal, Madison, Illinois*.

The scope of work generally encompassed the following tasks:

- Preparation of site-specific plans
- Site administration and logistical support
- Mobilization and demobilization
- Site preparation and teardown
- Excavation, Backfill, and Compacting
- Turf
- Operational scope of work
- Waste transportation and disposal

## 2.1 PREPARATION OF SITE-SPECIFIC PLANS

OHM revised the site-specific project work plan (WP) from DO 17 to serve as a guideline describing how the work was to be performed in order to meet the requirements specified by USACE. The WP also included the chemical data acquisition plan (CDAP) and the location-specific health-and-safety plan (LSSHHP).

Variances to the WP occurred during the project but were conducted only under authorization/direction of the USACE on-site representative(s). His/her purpose was to allow the project to function more efficiently while still remaining within all regulatory requirements. These variances are referenced and described in the relevant sections of this report.

The CDAP was prepared as a guideline to describe how, where, and how many samples would be collected. The laboratory analysis methods to be used, per the requirement of USACE's revised scope of services, were also outlined in the CDAP. In response to existing field conditions, this CDAP was amended to add the quality assurance project plan (QAPP) during the actual performance of work (see Section 2.6 for these amendments).

The LSSHHP was prepared as a guideline describing the health and safety procedures, which would be followed during the performance of the project. LSSHHP addressed physical, chemical, and environmental hazards unique to this project site. This LSSHHP was amended prior to the project to allow remedial work to

be performed by personnel wearing modified USEPA Level D personal protective equipment (PPE). The results of air monitoring indicated personnel could safely perform work at the remedial locations wearing poly tyvek suits, booties, gloves, hard hats, and safety glasses without respirators. Details pertaining to health and safety issues are discussed in Section 4.0, *Health and Safety Summary*.

## **2.2 SITE ADMINISTRATIONAL/LOGISTICAL SUPPORT**

The project site administration was centrally located at # 10 Farrish in Madison, Illinois. Site administrative activities performed from this location included:

- Site Supervisor
- Cost tracking/reporting
- Health and Safety administration
- Waste tracking/documentation
- Field sampling/analytical support
- Field purchasing/subcontract management
- Logistical support

Prior to the physical work, logistical preparation activities were performed, including the following activities:

- Conduct a pre-construction meeting
- Verifying waste hauling licenses
- Meeting with property owners
- Locating utilities at necessary sites
- Establishing transportation routes
- Coordinating with local agencies and hospital

## **2.3 MOBILIZATION/DEMOBILIZATION**

OHM performed mobilization of personnel and equipment primarily from its facility in O'Fallon, Missouri. A large percentage of the heavy equipment utilized on this project came from local vendors acting as subcontractors.

### **2.3.1 Subcontractors**

Subcontractor activities were managed by the OHM project manager and site supervisor, and by USACE when necessary. Subcontractors were responsible for transportation, disposal, backfill material, sod and on-site equipment.

### **2.3.2 Permits**

All necessary permits and licenses were secured before site mobilization. The transporter companies and disposal facilities were USEPA-licensed. Prior to mobilization, all on-site employees completed Occupational Safety and Health Administration (OSHA) 40-hour hazardous material training.

## **2.4 MOBILIZATION/DEMobilIZATION**

Sites were set up and/or torn down at each remedial lot.

### **2.4.1 Command Center**

The command center served as the central location from which all personnel were dispatched to their respective work locations each day or as needed. The command center was located inside of a secured building and was equipped with computers, copiers, facsimile machine, telephones, and base radio. The rear of the building also served as a storage area for OHM's equipment, tools, and materials.

### **2.4.2 Remedial Locations**

Site preparation was performed at each of the remedial locations. OHM set up decontamination points for personnel and equipment and exclusion zones were established prior to excavation. These exclusion zones were identified with orange snow fencing and yellow caution tape across existing fencing. They remained in place until backfill had been completed to a sufficient depth.

Excavation equipment used on the site was decontaminated prior to demobilization or backfill. Gross contamination was scraped from the machines before they were washed. As a dust control measure, the decontamination rinse water was collected and applied to the last load of contaminated soil.

## **2.5 OPERATIONAL SCOPE OF WORK PERFORMED**

The excavation activities involved the removal of contaminated soils from the remedial sites. Restoration involved backfilling, seeding, and sodding of the sites after completing the remedial activities. The scope of work for this portion of the project is illustrated in Figure 2.1.1 The operations Flow Chart is depicted in Appendix A-1.

OHM's schedule for excavation was developed to facilitate logistical management and limit the time required to transport equipment and crews from location to location. During excavation activities, engineering controls and security measures, such as surrounding the exclusion zones with fluorescent orange polyvinyl chloride (PVC) barrier fencing, were employed to prevent cross contamination and unauthorized entry into exclusion zones.

Each of the stack emission sites had unique characteristics which mandated particular methodologies of remediation.

### **2.5.1 Pre-construction Activities**

Pre-construction activities for this portion of the project included the following items:

- Conducting a pre-construction meeting with USACE

- Issuing subcontracts
- Communication with Julie Corporation (the utilities' identification organization in Illinois) to locate potential underground utilities at the site
- Obtaining permits
- Obtaining soil samples for waste characterization
- Videotaping residential properties for restoration purposes

#### **2.5.2 Construction Activities-Lots**

The excavation techniques employed at each location varied according to location accessibility, depth, and extent of material. Minimization of disturbances to adjoining properties/areas was also a key consideration in performing each excavation. OHM used Bobcat mini-excavators, TL26, Takeuchi, TCM806 along with Kubota Tractors and manual removal methods.

Dust control was a major consideration. A storage system with pump and hose were available at all times to prevent fugitive emissions. Water trucks were also utilized to provide additional dust control and to transport water to sites for decontamination.

Most of the residential yards needed to have sod removed at varying depths of soil. Wastes were excavated using a track excavator, Takeuchi, and/or a Bobcat. At some locations, hand digging was necessary. Special soil was loaded into licensed waste hauler trucks for transportation to the disposal facility.

Most of the driveways contained aggregate soil mixtures. Most locations were accessible but required smaller equipment and hand digging. Non-hazardous waste (special waste) was classified analytically. The special waste was loaded into licensed haul trucks and sent to the disposal site.

#### **2.5.4 Restoration**

After excavation to predetermine depth had been achieved, OHM restored the location to pre-remedial conditions. Excavation areas were backfilled with clean soil and restoration was completed as required by the specifications. Sodding, seeding, and revegetation were performed when necessary.

#### **2.5.5 Waste Removal**

Wastes removed from the sites were transported to one of two locations. Milam RDF/Chain of Rocks. Figure A-2 in Appendix A shows the flow chart for T&D.

### **2.6 SAMPLING AND ANALYSIS**

The following paragraphs detail the sampling and analysis tasks, as well as CDAP amendments/adjustments.



### 2.6.1 Sampling and Analysis Tasks

The sampling and analysis tasks for this project involved the following items:

- Street Sweeping
- Pre-characterization sampling and analysis of sites included as delineated by USACE
- Pre-characterization sampling and analysis of additional sites
- Resample (stack emission) as directed by USACE
- Backfill sampling

#### **Street Sampling**

OHM collected random grab samples from streets, as directed by USACE, for the purpose of determining the lead content of the street.

As per the scope of services issued to OHM by USACE, material at the residential sites exhibiting concentrations of total lead greater than 500 mg/kg were to be removed and disposed.

Samples were collected from one point in the front yard and one point in the back yard. Both samples collected were at least 10 feet from any structures if possible.

#### **Site Pre-Characterization Sampling and Analysis**

As the project progressed, the need to establish the level of effort anticipated for each upcoming site became much more apparent. The need to pre-characterize each of the remedial locations to establish reasonable estimates of non-hazardous waste requiring removal was made evident via an amendment to the CDAP. The site pre-characterization sampling and analysis efforts were applied to non-hazardous (stack emission) sites. The primary purpose of these efforts was to confirm or refute the potential contamination at each remedial location and to obtain an indication of the extent of contamination at sites with lead concentrations greater than 500 mg/kg. The most efficient and productive approaches to the pre-characterization sampling and analysis, which include the steps described in the following paragraphs, were ultimately developed for the residential lots.

Pre-characterization sampling and analysis at the residential lots included the establishment of two sample locations at each site. The two sample points were positioned at the center of the front and back yard of each location. One sample was then collected at the following depths from each sample location: 0 to 3 inches, 3 to 6 inches, and 6 to 12 inches.

The laboratory analysis of the samples followed the logic as below. The two samples representing the top 3-inch layer of each of the locations were analyzed for total lead and toxicity characteristic leaching procedure (TCLP) lead. The second and third set (representing 3 to 6 and 6 to 12 inch depths) were analyzed for total lead only.

This is depicted in Figure A-3 in Appendix A.

### **Pre-characterization of Additional Sites**

Under authorization of USACE, OHM performed the pre-characterization sampling of additional sites over and above the original scope of services. The objective of this was to determine the potential presence of lead contamination with anticipation for the planning of remediation at these same sites. The technical approach for this task involved the same approaches as mentioned in the preceding paragraphs concerning pre-characterization.

#### **2.6.2 CDAP Amendment/Adjustments**

##### **Development of the Sampling for Backfill Material**

An amendment for the sampling and analysis of backfill was designed to show that incoming backfill material was clean to USEPA standards. This was done as a composite sample on every 1000 cubic yards of backfill and run for the following analysis:

- TCLP for Cd, Cr, Pb
- PAH-IEPA Levels
- Pesticides/PCB's
- TPH
- GRO
- DRO
- Total VOC's

### **2.7 TRANSPORTATION AND DISPOSAL**

The transportation and disposal (T&D) of waste from the sites included the shipment of non-hazardous waste shipped to the Chain of Rocks facility/Milam facility. Garcia Trucking transported the special waste. The transportation of the waste was performed with tandem dump trucks.

#### **2.7.1 Transportation of Waste**

Each site was identified by an address, which was written on the manifest. The site was then assigned a 5-digit manifest document number at the time of shipment. This system ensured the trucks origin was documented.

The State of Illinois requires each special waste shipment be on an all Illinois manifest. This allowed each shipment of special waste to also be cross-referenced with the preprinted Illinois manifest document.

#### **2.7.2 Disposal of Wastes**

This project involved the removal and disposal of special non-hazardous industrial waste (non-hazardous waste) which was primarily removed from residential locations. The objective of the non-hazardous waste excavation efforts was to remove all material exhibiting concentration of total lead above

500 mg/kg, but less than 5 mg/l, when analyzed by TCLP.

Disposal characterization of waste was determined by analyzing composite samples, as directed in Section 2.6. Pre-characterization analysis was done at each site to verify depth of lead contamination. The characterization of certain waste as non-hazardous was confirmed at each site with the performance of TCLP lead analysis of composite samples.

The disposal facility subcontracted to provide non-hazardous waste disposal was the Chain of Rocks facility/Milam. OHM obtained the approved waste profile by providing analytical that was previously performed under the Rapid Response Contract.

### **3.0 TECHNICAL APPROACH**

The stated objective of this project was to excavate and dispose of lead contaminated soil in yards of residential communities as per the Record of Decision between the USEPA, IEPA, and the potentially responsible parties (PRPs) for the Superfund site.

This section describes the general approach implemented to complete the work in the residential lots. The methods implemented to perform the work on this project fall into one category:

- Residential lots (Non-Hazardous)

The operational effort extended was supported by the technical information that was gained through implementation of the following:

- CDAP amendment/adjustment
- Transportation and disposal, Appendix A-2

### **3.1 PRE-CONSTRUCTION ACTIVITIES**

The pre-construction activities performed during this project were predominantly associated with obtaining disposal permits; obtaining transportation permits; preparing and delivering notifications of work to the public; attending public meetings; and identifying utilities at each remedial location. Many of these pre-construction activities were performed on an on-going basis as the project proceeded from one remedial location to the next.

The permits for the disposal of non-hazardous waste were obtained prior to shipment of the waste.

Before work progressed from one remedial location to the next, the identification of utilities was coordinated from the command center by OHM's safety supervisor. The identification of the utilities was coordinated with Julie Corporation. OHM's safety supervisor would telephone Julie Corporation and notify the organization of OHM's intention to perform work at a given site. Julie Corporation would then issue a "dig number" to OHM and notify all utility companies listed to provide service for the area of concern. Typically, the utility companies would mark the utilities on the site within 48 hours of OHM's initial contact with Julie Corporation.

OHM's subcontractors who performed the transportation of waste and equipment at and through the cities of Madison, Venice, and Granite City, Illinois City obtained required transportation permits.

### **3.2 SAMPLING AND ANALYSIS**

The sampling and analysis tasks involved the following items:

- Laboratory confirmation sampling and analysis
- Pre-characterization sampling and analysis
- Backfill sampling

As per the direction of USACE, material at the residential sites exhibiting concentrations of total lead greater than 500 mg/kg were removed and disposed.

### **3.2.1 Pre-Characterization Sampling and Analysis**

As the project progressed, the need to establish the level of effort anticipated for each upcoming site became much more apparent. The need to pre-characterize each of the remedial locations for establishing reasonable estimates of non-hazardous waste requiring removal was made evident through incorporation into the CDAP. The site pre-characterization sampling and analysis efforts were applied to non-hazardous (stack emission) sites. The primary purpose of the pre-characterization sampling was to confirm presence of non-hazardous waste meeting the action level. The most effective and productive approaches to the pre-characterization sampling and analysis were ultimately developed for the residential lots.

### **3.2.2 Technical Approach to Stack Emission Lots**

The technical approach to the stack emission lots differed from the residential battery casing cleanups in the respect no confirmation sampling was necessary. The reason for this was due to previous sampling results yielding a pre-determined depth per USEPA. Consequently, yards were excavated to this pre-determined depth. In addition, all waste was shipped out as special-direct to a landfill.

## **3.3 CHEMICAL DATA ACQUISITION PLAN AMENDMENTS/ADJUSTMENTS**

### **3.3.1 Development of the Sampling for Backfill Material**

An amendment for the sampling and analysis of backfill material was designed to show that incoming backfill material was clean to USEPA standards. This was done as composite samples on every 1000 cubic feet of backfill and run for the following analysis:

- TCLP for Cd, Cr, Pb
- PAH-IEPA Levels
- Pesticides/PCB's
- TPH
- GRO
- DRO
- Total VOC's

## **3.4 TRANSPORTATION AND DISPOSAL**

The T & D of waste removed from the sites included the shipment of non-hazardous waste by Garcia Trucking to Chain of Rocks Landfill/ Milam in Granite City, IL.

### **3.3.1 Transportation of Waste**

Each site was identified by an address, which was written on the manifest. The site was then assigned a 5-digit manifest document number at the time of shipment. This system ensured the truck origins were documented.

**3.3.2 Disposal of Wastes**

Disposal characterization of the waste was determined by analyzing composite samples, as described in Section 2.6. Verification of waste characterization was performed at each site through pre-characterization efforts. The characterization of certain waste as non-hazardous was confirmed at each site with the performance of total lead and TCLP lead analysis of composite samples.

The disposal facility subcontracted to provide non-hazardous waste disposal was Chain of Rocks/Milam in Granite City, IL. OHM obtained the approved waste profile by providing analytical that was previously done under Rapid Response Contract.

## **4.0 HEALTH AND SAFETY SUMMARY**

### **4.1 PROJECT SUMMARY AND CONCLUSIONS**

#### **4.1.1 Summary**

The following summarizes the health and safety aspects of this project:

- Task-specific hazard evaluations were performed each day at each work site prior to the start of work
- Air monitoring data was used during this project to verify appropriate personal protection was being used for site conditions. Personnel medical monitoring was performed prior to and at the end of the project to determine lead levels in the blood.
- Perimeter samples indicated total lead concentration below the action limit established in the LSSHP. Although results obtained are "after the fact," no personnel or citizens were at risk to exposure at any time.
- Personnel air sampling data indicated no detectable reading for total lead. There were no recorded cases of personnel overexposure to ambient lead levels.

#### **4.1.2 Conclusions**

Following completion of the project, the OHM Health and Safety Department made the following conclusions:

- The LSSHP was effectively implemented to address the health and safety hazards associated with each phase of site operations and to meet the requirements set forth in 29 CFR 1910.120.
- The existing LSSHP is appropriate for future phases of work at this site involving the same work activities.
- Future work should be performed in Level D PPE with appropriate air monitoring to verify the selection of PPE. An action level of 30mg/m<sup>3</sup> should be used to warrant controls. Once monitoring shows consistent reading below the action level, the amount and frequency of air monitoring may be appropriately limited/reduced.
- Special attention should be paid to prevent any recordable accidents and near misses during the course of future work. Routine tasks should be reviewed and evaluated for potential hazards.

### **4.2 SITE SAFETY AND HEALTH PLAN EVALUATION**

A LSSHP was issued before the start of this project to address the health and safety hazards

associated with each phase of site operations. The plan met the requirements of 29 CFR 1910.120. The phases of work addressed in the LSSHP include the following:

- Mobilization
- Installation of perimeter fence
- Soil sampling
- Excavation of contaminated soil
- Load-out of contaminated soil
- Backfill of excavation
- Restoration of disturbed areas
- Decontamination and demobilization

#### **4.2.1 Provisions**

Once on site, waste materials were designated to be directly loaded into dump trucks.

Provisions were made to address heavy equipment, excavation and other physical hazards. Hazards associated with vehicle and pedestrian traffic in work areas and roadways were controlled by the use of warning signs, Men at Work signs, and road guards to direct traffic.

#### **4.2.2 Personal Protective Equipment**

PPE provisions were made to minimize exposure to lead contamination for personnel on site. Level D PPE included the following:

- Hard hat
- Safety glasses
- Steel-toed leather safety shoes/boots
- Poly tyvek coveralls
- Nylon booties (under) and Robar/Tingley boots (outer)
- Inner sample gloves, outer cloth or leather gloves

An action level of 15.0 mg/m<sup>3</sup> of airborne lead, as determined by integrated sampling was set by USACE to upgrade the level of PPE to Level C (including use of an air-purifying respirator.) Air monitoring was performed for the duration of remedial activities to ensure proper PPE use.

### **4.3 SITE SAFETY**

#### **4.3.1 Accidents**

Employee safety was OHM's first priority. After performing more than 9,600 man hours on this project, OHM personnel suffered no OSHA-recordable accidents or injuries.



#### **4.3.2 Preventative Measures**

A number of measures were taken on site to prevent accidents and injuries. Daily safety meetings were held to discuss: hazards associated with upcoming work tasks; the use of specific tools and equipment; and other chemical, physical, and environmental hazards associated with site work. Task-specific hazard evaluations were performed each day at the work sites prior to the start of work.

Controls were used to eliminate the hazards associated with vehicle and pedestrian traffic near the work locations. Warning signs were posted and guards were used to direct traffic.

A heat stress prevention program was also instituted on site. Personnel heat stress monitoring was performed to prevent heat-related illnesses during work in high ambient temperatures. Site workers' pulses, body temperatures, and blood pressures were taken before and after each break. Work-rest schedules were determined by the results of this monitoring in accordance with the LSSHP heat stress monitoring criteria.

Specific work/rest regimens were established at the start of every workday based on the specific work conditions for that day (temperatures, time of day, amount of sun or shade, etc.) Breaks were taken in shady areas as designated throughout the work shift. Personnel removed PPE and were given cool liquids to drink (e.g., juice, and water). Visual observation by a designated safety official was used to identify individuals exhibiting symptoms of heat-related illness and to take the necessary actions.

### **4.4 EXPOSURE MONITORING**

#### **4.4.1 Methodology**

Air monitoring was performed to determine the ambient levels of total suspended particulates generated during excavation and to determine total ambient lead exposure for site personnel and perimeter emissions. At the start of each workday, wind direction was used to determine the placement of sampling instruments on site.

Personnel and perimeter samples were taken to determine the levels of total lead in the air of the personal breathing zone and at the site perimeter. Lead samples were collected and analyzed using NIOSH Method 7300 and battery-operated air sampling pumps (Gilliam or equivalent) fitted with 37-millimeter (mm) mixed cellulose ester (MCE) filters (0.8-micron pore diameter).

#### **4.4.2 Perimeter Sampling**

Three perimeter samples were taken daily over the course of the work shift. One sample was taken upwind of site operations and two were taken downwind. Perimeter samples were taken above ground levels (approximately 4 to 5 feet in height) to characterize the breathing zone and to prevent contamination due to foot traffic. The pump flowrate was calibrated and set at approximately 20 liters per minute for the duration of the task (about 8 hours.)

Samples were assigned identification numbers based on an established code. The analytical laboratory used was Environmetrics, 11401 Moog Drive, St. Louis, Missouri. Standard turnaround time for

sample results was 24 to 48 hours by facsimile; original data was then returned by mail.

#### **4.4.3 Personnel Sampling**

Personnel air samples for lead were taken for a respective number of employees performing intrusive activities within the exclusion zone (one employee from each job category; at least two employees per day per site). The samples were taken in the person's breathing zone for the duration of the day's shift. Samples were collected at the end of the workday and sent to the analytical laboratory for analysis of total lead. A blank sample was included in shipment.

#### **4.4.4 Medical Monitoring**

Personnel blood lead levels were determined prior to and after the completion of work for this project.

## **5.0 QUANTITY SUMMARY TABLE**

Quantities of material were tracked for each lot or site remediated. Table 5.1 presents a summary of these totals.

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QUANTITY SUMMARIES

Site Address	Special cu yd	Sod sq yd	CA-6 ton	CA-7 ton	Topsoil cu yd	Backfill loads
	67.09	570	27.80		21.73	2
	77.79	300			21.65	8
	56.98	420			32.69	
	35.93	180			11.62	5
	8.08	300	41.93	13.56	10.38	6
	11.69		14.66			
	41.12		57.69	14.42		
	40.75	240			21.27	
	53.85	180	73.31		11.65	2
	57.38	180	32.67		33.73	
	30.58	120	14.07	28.03	22.62	
	54.99	360			32.77	
	66.75	120	69.16	9.54	7.81	3
	127.90	960	15.79		30.88	14
	18.48	120			10.58	4
	342.12	510	158.75	28.09	52.92	25
	42.03	420			10.58	2
	320.08	510	30.51	14.93	33.69	52
	25.03	180			29.73	
	55.15	240	30.95	29.24		3
	116.70	780	52.45	43.26	53.46	6
	63.80	600			33.08	8
	99.90	546	15.40	14.55	131.58	7
	69.18	600	27.43	26.07	22.23	6
<b>Totals:</b>	<b>1883.37</b>	<b>8436</b>	<b>662.57</b>	<b>221.69</b>	<b>636.65</b>	<b>153</b>

## **6.0 VERIFICATION ANALYTICAL SUMMARY TABLE**

### **6.1 Stack Emission Sites**

Stack emission sites were not sampled for verification. This was due to the fact that a predetermined depth for excavation was given to OHM by USACE for each stack emission site.

Stack emission sites are sampled for pre-characterization analysis. Depth's from Woodward/Clyde Sampling are being reviewed by the USEPA and may result in re-sampling.

## 7.0 PHOTO REPRESENTATION

Photographs and videocassettes documented all sites in all phases of the Granite City project. Each property was documented with before, during, and after photographs and videos. The following sections are representative of the various types of work performed during Phases 1, 2, and 3. Not all properties - only selected representative samples - are presented in this final report, in order to minimize the volume of paper.

### 2012 Cleveland (Page 7-2)

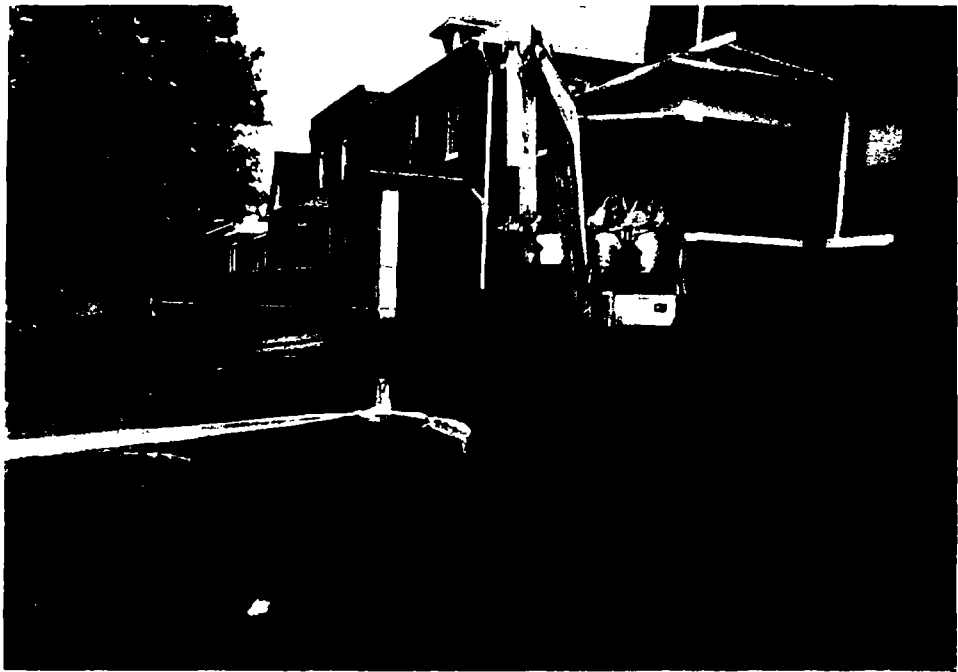
- Top picture – Lot before excavation
- Middle picture – Lot during excavation
- Bottom picture – Lot after restoration/sod

### 2112/14 Delmar (Page 7-3)

- Top picture – Lot before excavation
- Middle picture – Lot during excavation
- Bottom picture – Lot after restoration/sod

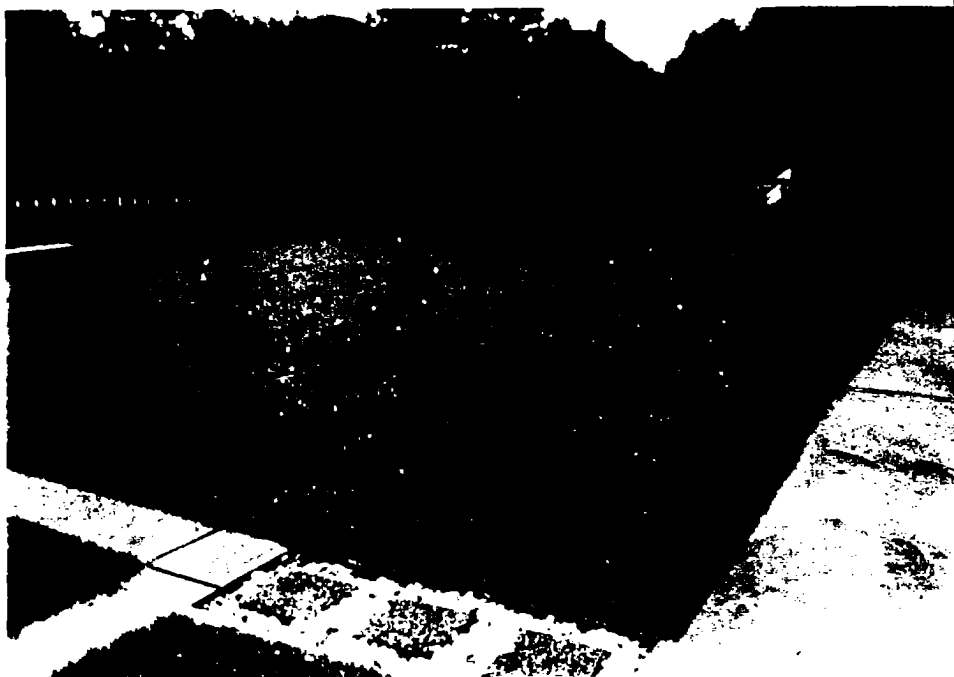
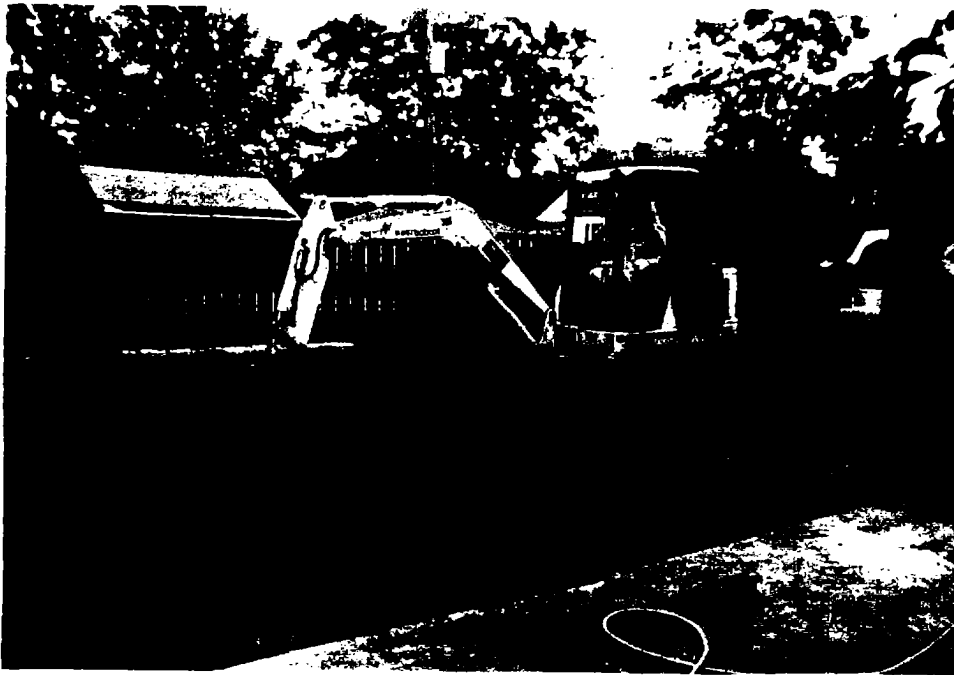
### 2208 Edison (Page 7-4)

- Top picture – Lot before excavation
- Middle picture – Lot during excavation
- Bottom picture – Lot after restoration/sod







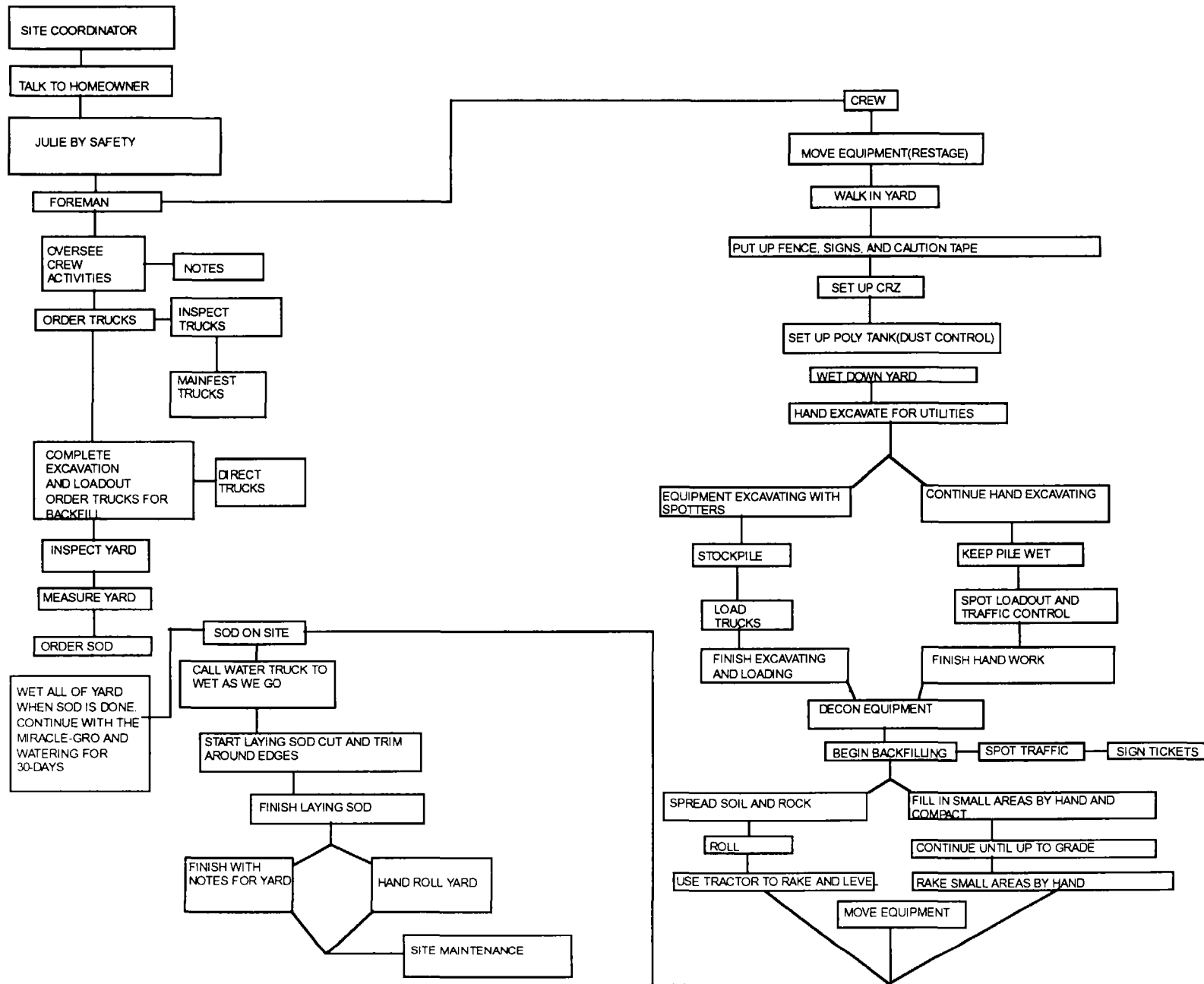


***APPENDIX A***

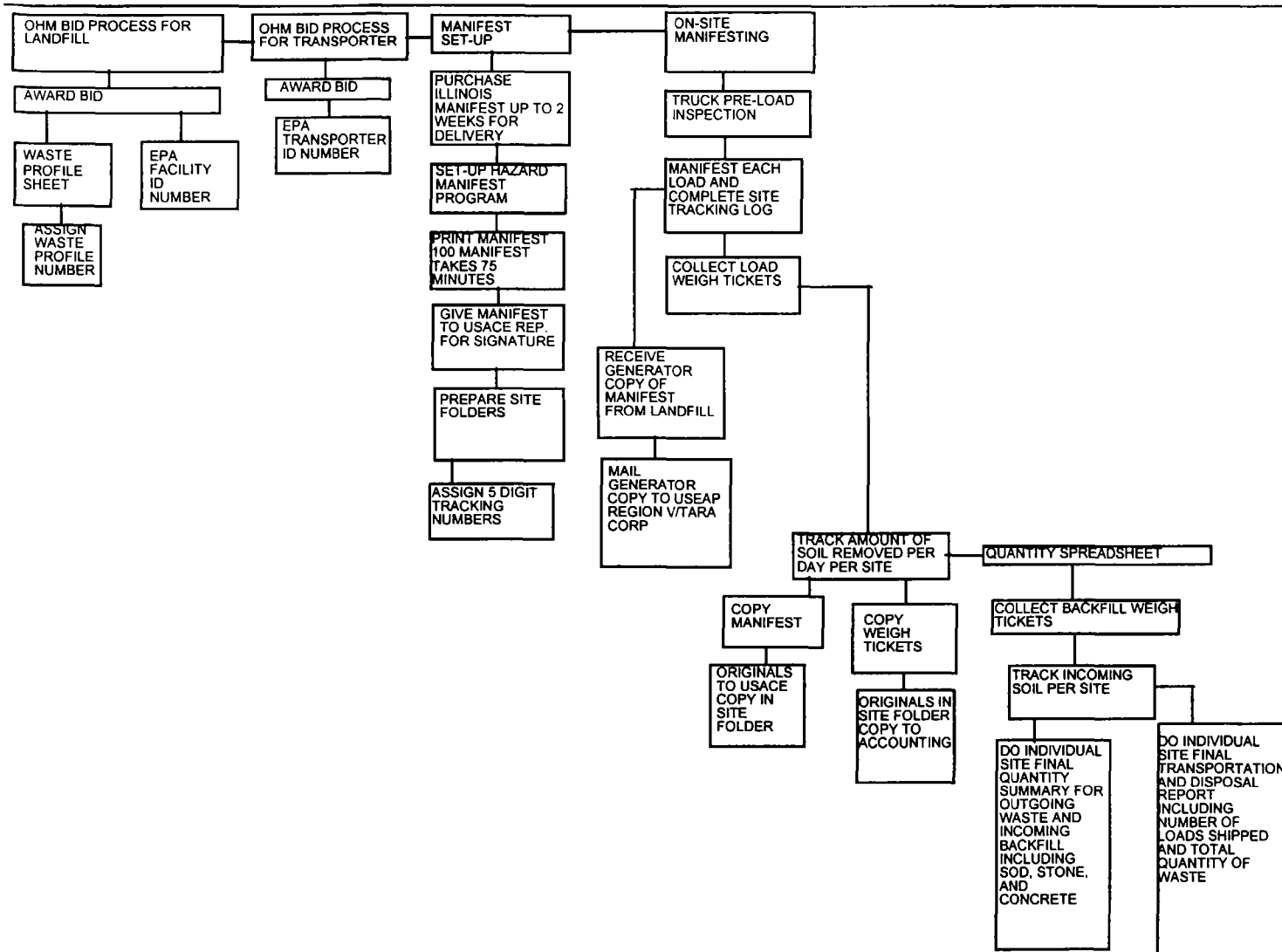
***FLOW CHARTS***

<b><i>APPENDIX A-1</i></b>	<b><i>OPERATIONS FLOW CHART</i></b>
<b><i>APPENDIX A-2</i></b>	<b><i>TECHNICAL EFFORT FOR TRANSPORTATION AND DISPOSAL</i></b>
<b><i>APPENDIX A-3</i></b>	<b><i>TECHNICAL EFFORT FOR SAMPLING</i></b>
<b><i>APPENDIX A-4</i></b>	<b><i>SITE COORDINATOR FLOW CHART</i></b>

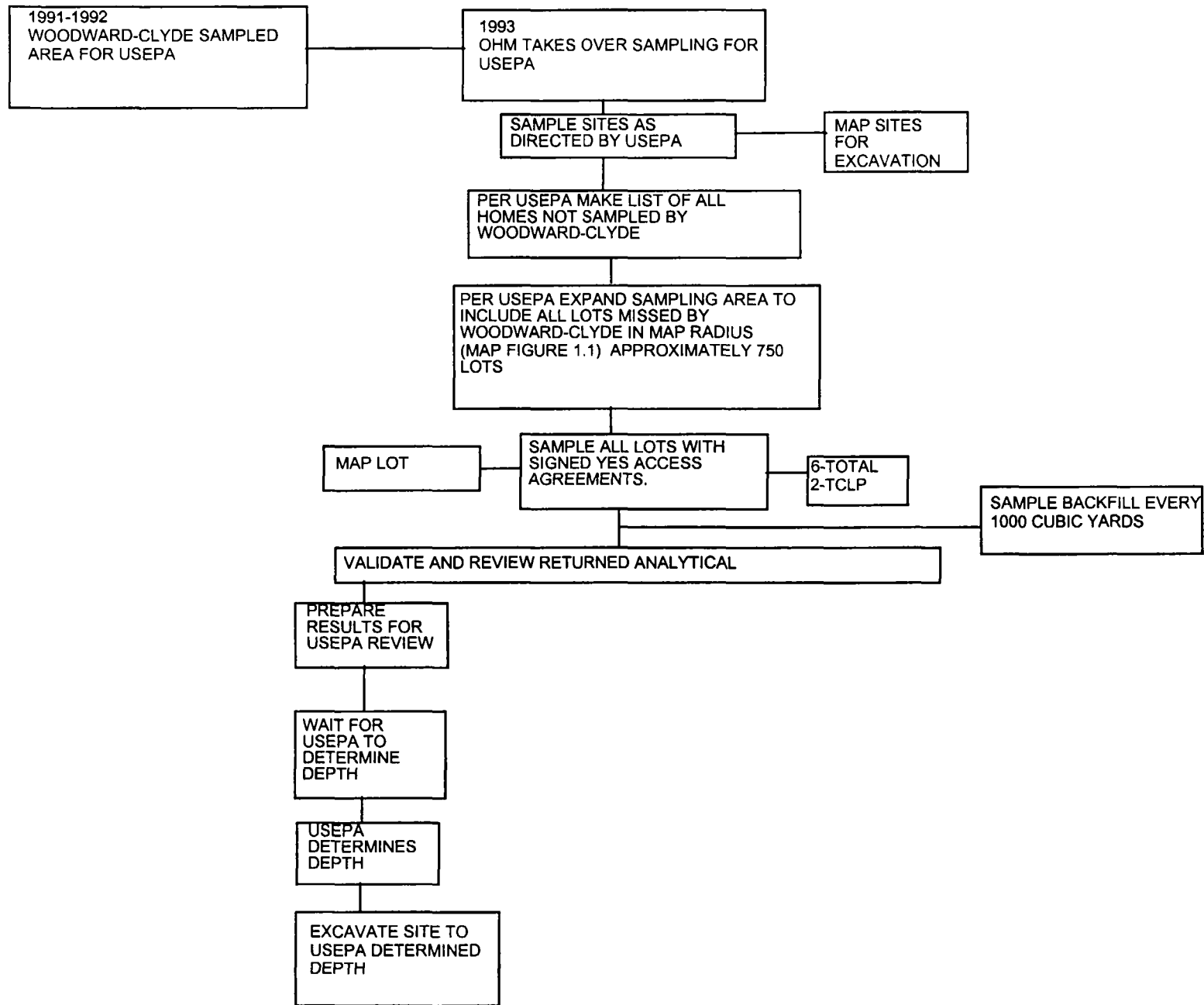
# OPERATIONS FLOW CHART



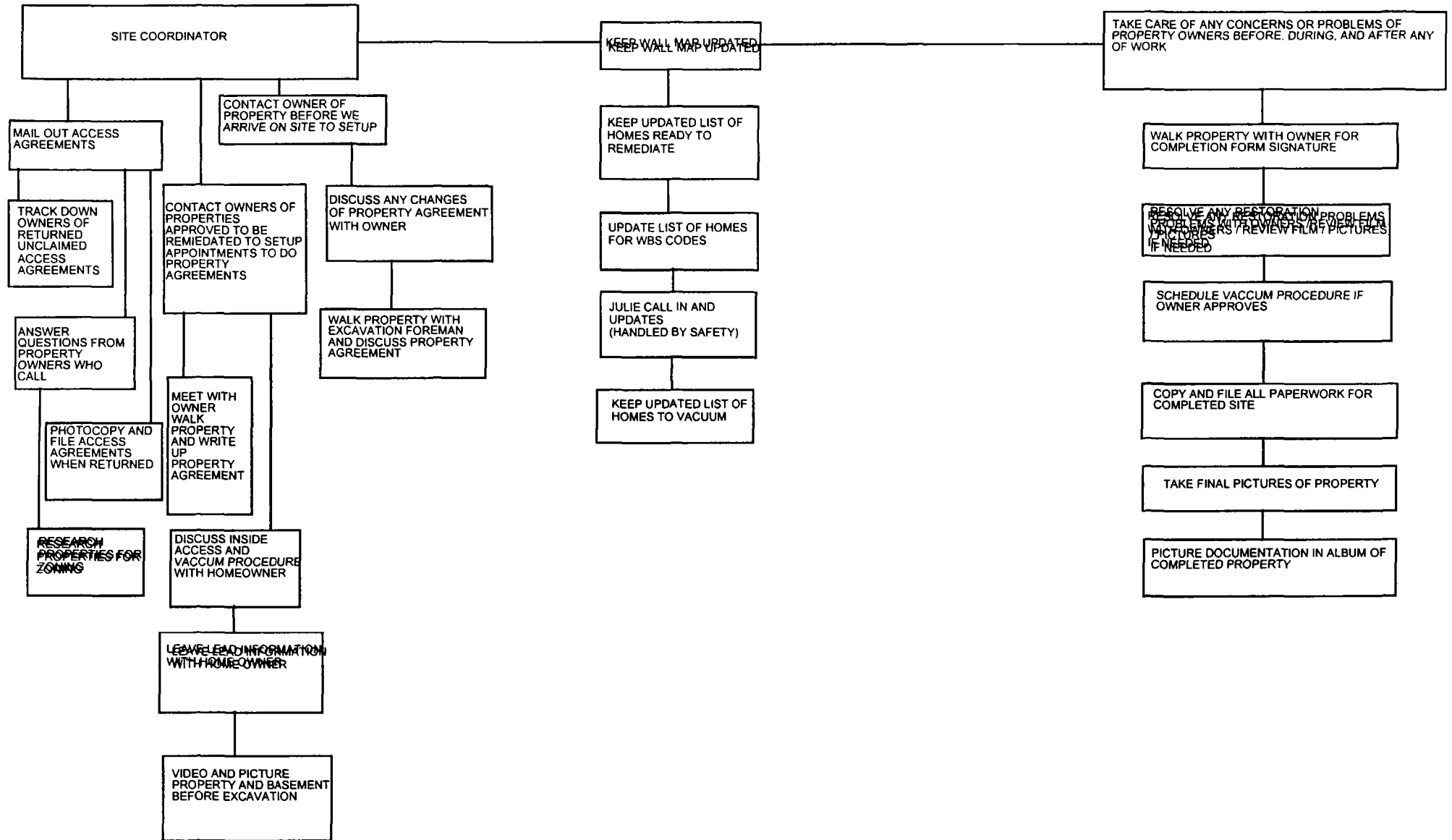
# TECHNICAL EFFORT FOR TRANSPORTATION AND DISPOSAL



# TECHNICAL EFFORT FOR SAMPLING



# SITE COORDINATOR FLOW CHART



*APPENDIX B - REMEDIAL LOCATION WORK DESCRIPTIONS*

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***APPENDIX B - REMEDIAL LOCATION WORK DESCRIPTIONS***





Action Date: 6/3/98

Loadout: 6/15/98

Restoration Begins: 6/15/98

Restoration Completed: 6/19/98

\*Easements were not sampled for verification due to the fact that a pre-determined depth for excavation was given to OHM by USACE.

\*An excavation depth of 6 inches was established by USACE prior to work commencing.

\*The excavation of special waste yielded a total of 67.09 cubic yards, which was shipped to WMI-Milam for disposal.

\*Equipment utilized during excavation:

\*TL-26

\*TCM

\*X331

\*17-KW

\*Subcontractors:

\*WMI-landfill

\*B. Garcia-trucking

\*Grantham-trucking



OHM CORPORATION  
PROJECT 20366  
GRANITE CITY, IL

QUANTITY SUMMARY FOR



SPECIAL WASTE (TONS)	BACKFILL (LOADS)	TOPSOIL (TONS)	CA-6 (TONS)	CA-7 (TONS)	SAND (TONS)	SOD CU.YDS.	CONCRETE	OTHER
87.22	2	28.25	27.80			570		

**Sampling Analysis**  
**Project #20366**

0 - 3" Front and Back

	A	A	A
Street/Number	PPM	PPM	PPM
Address	No.	No.	No.



329 898  
505 1490

3-6" Front and Back

B	B	B
PPM	PPM	PPM
No.	No.	No.

170 1930  
340 598

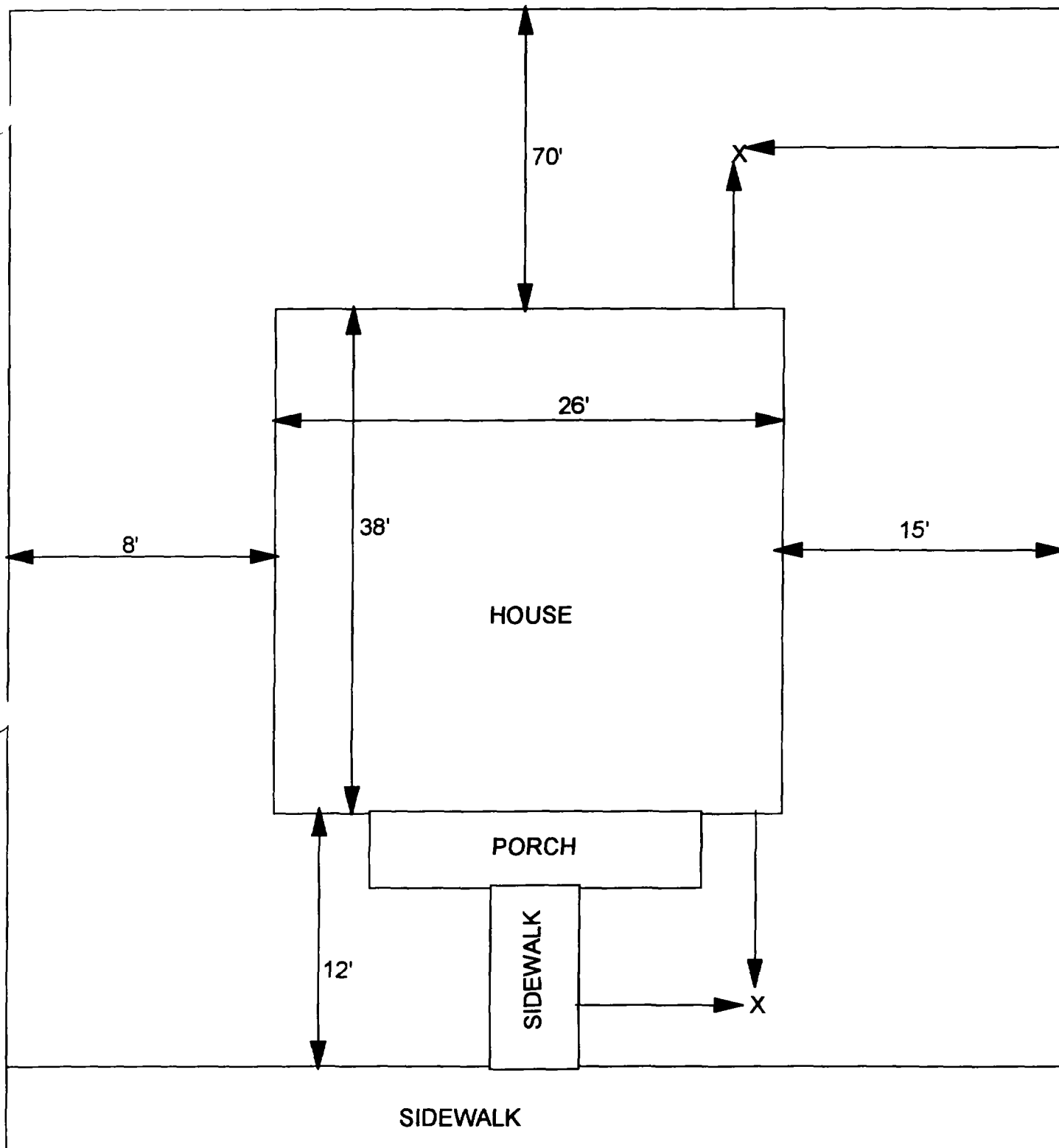
6-12" Front and Back

C	C	C
PPM	PPM	PPM
No.	No.	No.

62 11

Depth
Excav.
(inch)

6



X - SAMPLE POINT

49' X 120'

**OHM**   
**Corporation**  
 Findlay, Ohio

Drawn By: <b>EDJ</b>	Checked By:
Date: 10/14/98	Approved By:
Scale: <b>NTS</b>	Drawing No:

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.)

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Action Date: 6/3/98

Loadout: 6/13/98

Restoration Begins: 6/13/98

Restoration Completed: 6/19/98

\*Easements were not sampled for verification due to the fact that a pre-determined depth for excavation was given to OHM by USACE.

\*An excavation depth of 6 inches was established by USACE prior to work commencing.

\*The excavation of special waste yielded a total of 77.79 cubic yards, which was shipped to WMI-Milam for disposal.

\*Equipment utilized during excavation:

\*TL-26

\*TCM

\*X331

\*17-KW

\*Subcontractors:

\*WMI-landfill

\*B. Garcia-trucking

\*Grantham-trucking

OHM CORPORATION  
PROJECT 20366  
GRANITE CITY, IL

QUANTITY SUMMARY FOR



SPECIAL WASTE (TONS)	BACKFILL (LOADS)	TOPSOIL (TONS)	CA-6 (TONS)	CA-7 (TONS)	SAND (TONS)	SOD CU.YDS.	CONCRETE	OTHER
101.13	8	28.15				300		

(  
**Sampling Analysis**  
**Project #20366**

0 - 3" Front and Back

	A	A	A
Street/Number	PPM	PPM	PPM
Address	No.	No.	No.

 982 678

(  
3-6" Front and Back

B	B	B
PPM	PPM	PPM
No.	No.	No.

541 629

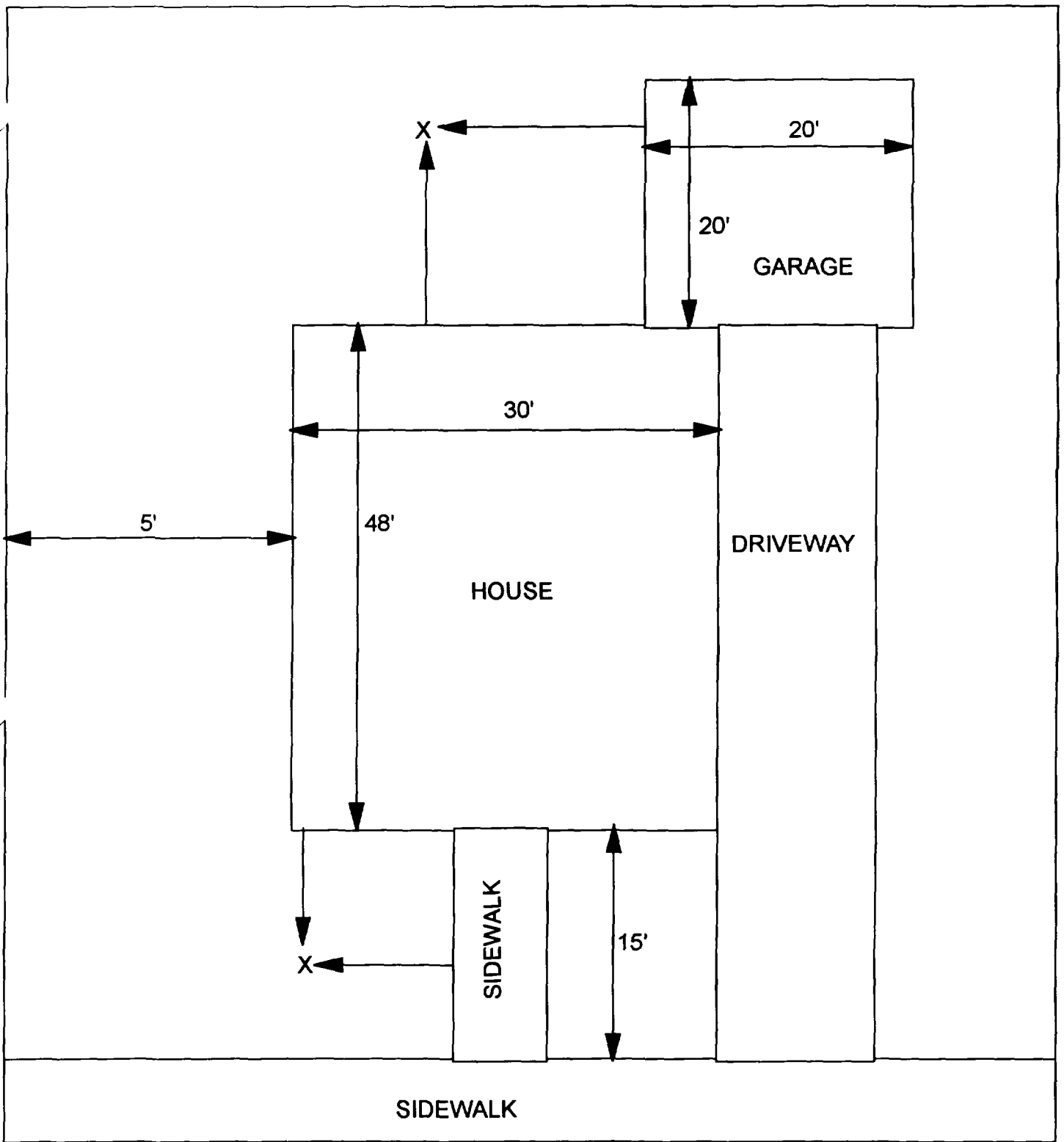
(  
6-12" Front and Back

C	C	C
PPM	PPM	PPM
No.	No.	No.

234 167

Depth
Excav.
(inch)

6



X - SAMPLE POINT

55' X 83'

**OHM Corporation**  
Findlay, Ohio

Drawn By: <b>EDJ</b>	Checked By:
Date: <b>10/14/98</b>	Approved By:
Scale: <b>NTS</b>	Drawing No:



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Action Date: 5/26/98

Loadout: 5/28/98

Restoration Begins: 5/28/98

Restoration Completed: 6/2/98

\*Easements were not sampled for verification due to the fact that a pre-determined depth for excavation was given to OHM by USACE.

\*An excavation depth of 3 inches was established by USACE prior to work commencing.

\*The excavation of special waste yielded a total of 56.98 cubic yards, which was shipped to WMI-Milam for disposal.

\*Equipment utilized during excavation:

\*TL-26

\*TCM

\*X331

\*17-KW

\*Subcontractors:

\*WMI-landfill

\*B. Garcia-trucking

\*Grantham-trucking

OHM CORPORATION  
PROJECT 20366  
GRANITE CITY, IL

QUANTITY SUMMARY FOR



SPECIAL WASTE (TONS)	BACKFILL (LOADS)	TOPSOIL (TONS)	CA-6 (TONS)	CA-7 (TONS)	SAND (TONS)	SOD CU.YDS.	CONCRETE	OTHER
74.07		42.50				420		

(  
**Sampling Analysis**  
**Project #20366**

0 - 3" Front and Back

	<b>A</b>	<b>A</b>	<b>A</b>
<b>Street/Number</b>	<b>PPM</b>	<b>PPM</b>	<b>PPM</b>
<b>Address</b>	<b>No.</b>	<b>No.</b>	<b>No.</b>



**509**    **358**  
**247**    **1476**

(  
3-6" Front and Back

<b>B</b>	<b>B</b>	<b>B</b>
<b>PPM</b>	<b>PPM</b>	<b>PPM</b>
<b>No.</b>	<b>No.</b>	<b>No.</b>

336    381

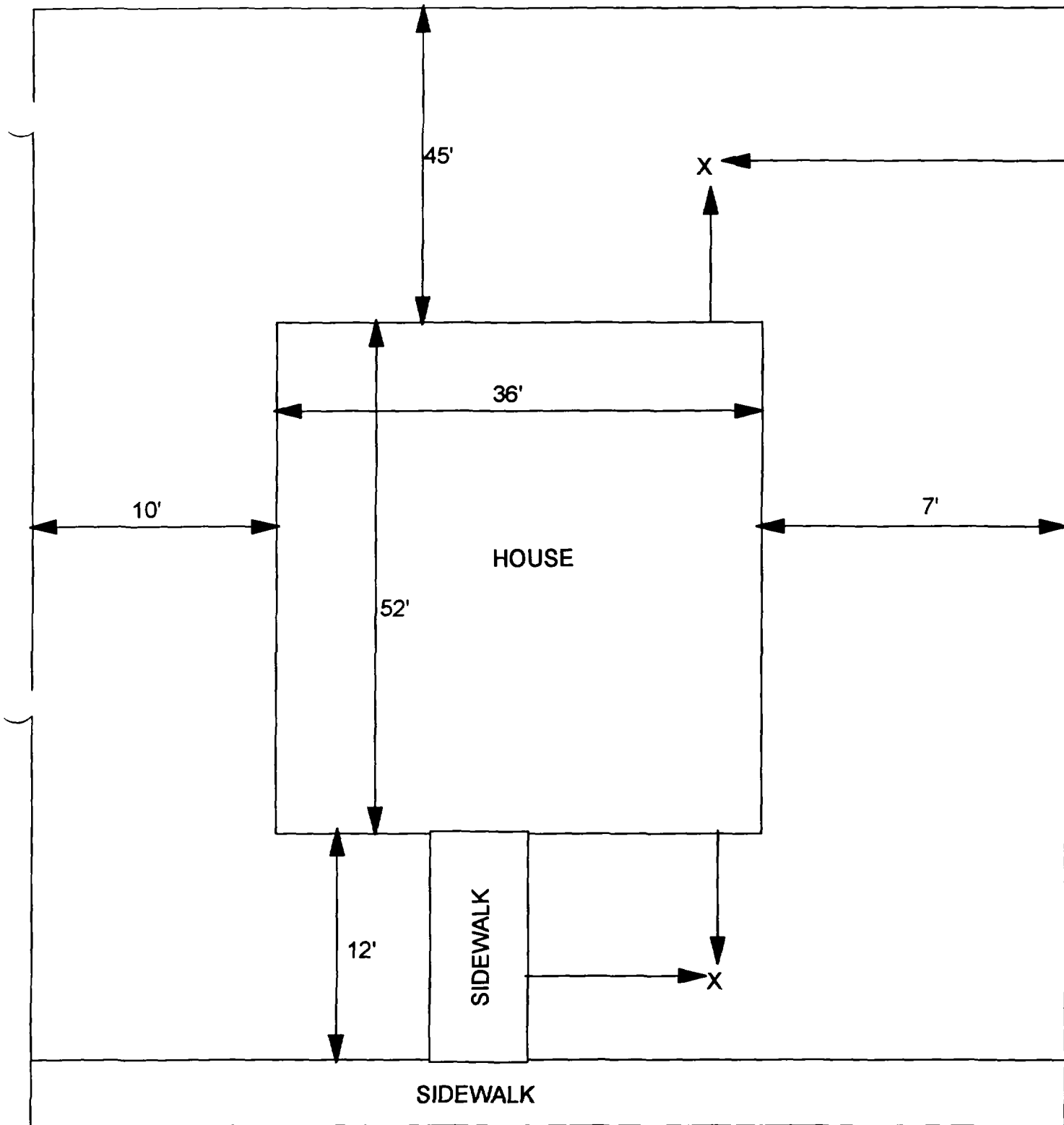
(  
6-12" Front and Back

<b>C</b>	<b>C</b>	<b>C</b>
<b>PPM</b>	<b>PPM</b>	<b>PPM</b>
<b>No.</b>	<b>No.</b>	<b>No.</b>

172    264

<b>Depth</b>
<b>Excav.</b>
<b>(inch)</b>

3



X - SAMPLE POINT

<div style="background-color: black; width: 100px; height: 20px; margin-bottom: 5px;"></div> 52' X 109'		<b>OHM Corporation</b> <small>Findlay, Ohio</small>	
Drawn By:	EDJ	Checked By:	
Date:	10/14/98	Approved By:	
Scale:	NTS	Drawing No:	

1

2

3

[REDACTED]

Action Date: 5/28/98

Loadout: 5/29/98

Restoration Begins: 5/29/98

Restoration Completed: 6/3/98

\*Easements were not sampled for verification due to the fact that a pre-determined depth for excavation was given to OHM by USACE.

\*An excavation depth of 6 inches was established by USACE prior to work commencing.

\*The excavation of special waste yielded a total of 35.93 cubic yards, which was shipped to WMI-Milam for disposal.

\*Equipment utilized during excavation:

\*TL-26

\*TCM

\*X331

\*17-KW

\*Subcontractors:

\*WMI-landfill

\*B. Garcia-trucking

\*Grantham-trucking

OHM CORPORATION  
PROJECT 20366  
GRANITE CITY, IL

QUANTITY SUMMARY FOR



SPECIAL WASTE (TONS)	BACKFILL (LOADS)	TOPSOIL (TONS)	CA-6 (TONS)	CA-7 (TONS)	SAND (TONS)	SOD CU.YDS.	CONCRETE	OTHER
46.71	5	15.11				180		




(

**Sampling Analysis**  
**Project #20366**

0 - 3" Front and Back

	<b>A</b>	<b>A</b>	<b>A</b>
<b>Street/Number</b>	<b>PPM</b>	<b>PPM</b>	<b>PPM</b>
<b>Address</b>	<b>No.</b>	<b>No.</b>	<b>No.</b>

 381  
767 656

(

3-6" Front and Back

<b>B</b>	<b>B</b>	<b>B</b>
<b>PPM</b>	<b>PPM</b>	<b>PPM</b>
<b>No.</b>	<b>No.</b>	<b>No.</b>

226  
695 31  
430 362

(

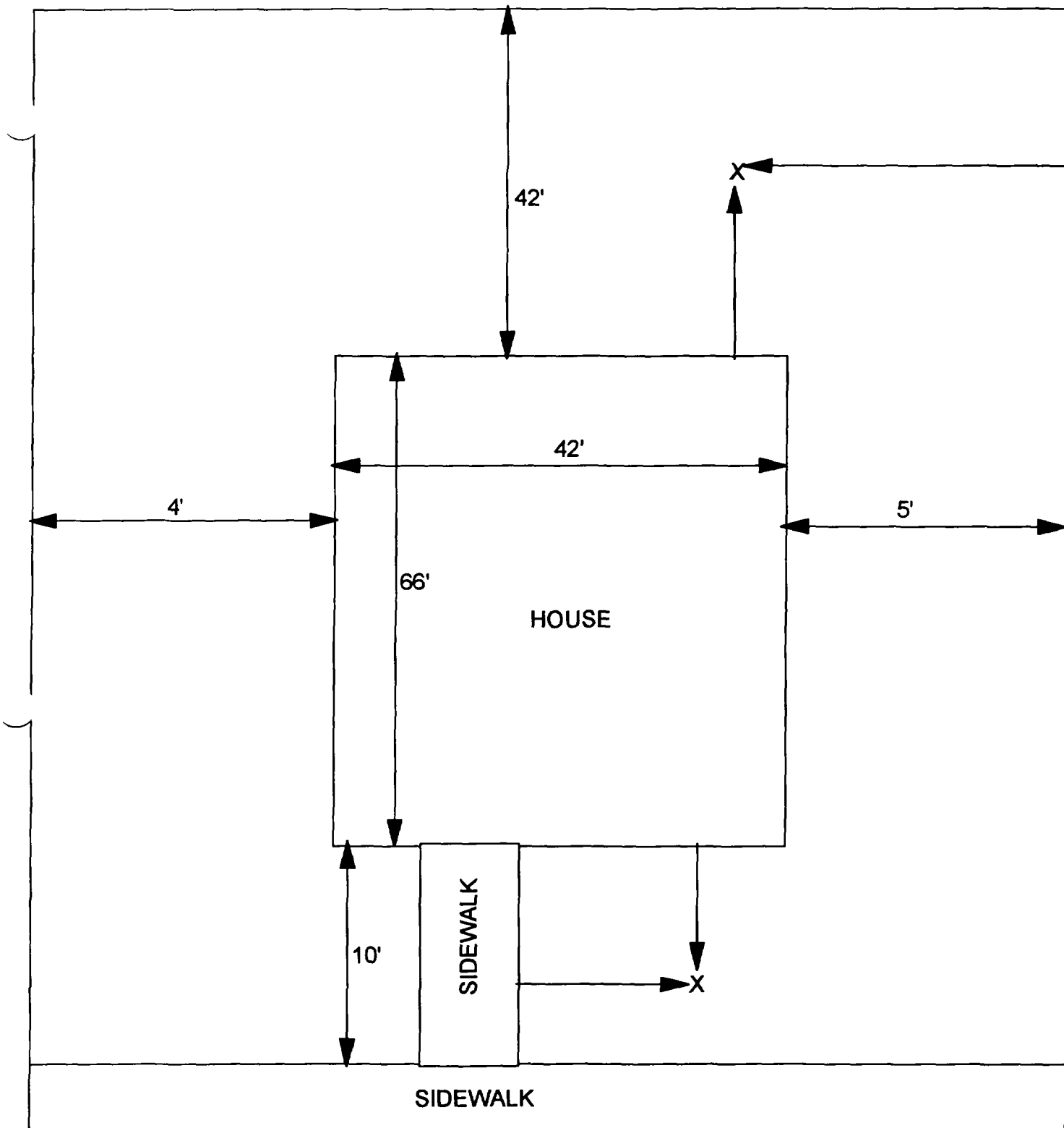
6-12" Front and Back

<b>C</b>	<b>C</b>	<b>C</b>
<b>PPM</b>	<b>PPM</b>	<b>PPM</b>
<b>No.</b>	<b>No.</b>	<b>No.</b>

192  
438 74

<b>Depth</b>
<b>Excav.</b>
<b>(inch)</b>

6



X - SAMPLE POINT

<div style="background-color: black; height: 15px; width: 100%;"></div> <b>51' X 118'</b>		<b>OHM Corporation</b> <small>Findlay, Ohio</small>	
Drawn By:	<b>EDJ</b>	Checked By:	
Date:	10/14/98	Approved By:	
Scale:	<b>NTS</b>	Drawing No:	

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Action Date: 6/3/98

Loadout: 6/15/98

Restoration Begins: 6/15/98

Restoration Completed: 6/19/98

\*Easements were not sampled for verification due to the fact that a pre-determined depth for excavation was given to OHM by USACE.

\*An excavation depth of 6 inches was established by USACE prior to work commencing.

\*The excavation of special waste yielded a total of 77.32 cubic yards, which was shipped to WMI-Milam for disposal.

\*Equipment utilized during excavation:

\*TL-26

\*TCM

\*X331

\*17-KW

\*Subcontractors:

\*WMI-landfill

\*B. Garcia-trucking

\*Grantham-trucking

OHM CORPORATION  
PROJECT 20366  
GRANITE CITY, IL

QUANTITY SUMMARY FOR




SPECIAL WASTE (TONS)	BACKFILL (LOADS)	TOPSOIL (TONS)	CA-6 (TONS)	CA-7 (TONS)	SAND (TONS)	SOD CU.YDS.	CONCRETE	OTHER
10.50	6	13.49	41.93	13.56		300		

(  
**Sampling Analysis**  
**Project #20366**

0 - 3" Front and Back

	A	A	A
Street/Number	PPM	PPM	PPM
Address	No.	No.	No.

 966 666

(  
3-6" Front and Back

B	B	B
PPM	PPM	PPM
No.	No.	No.

1062 414

6-12" Front and Back

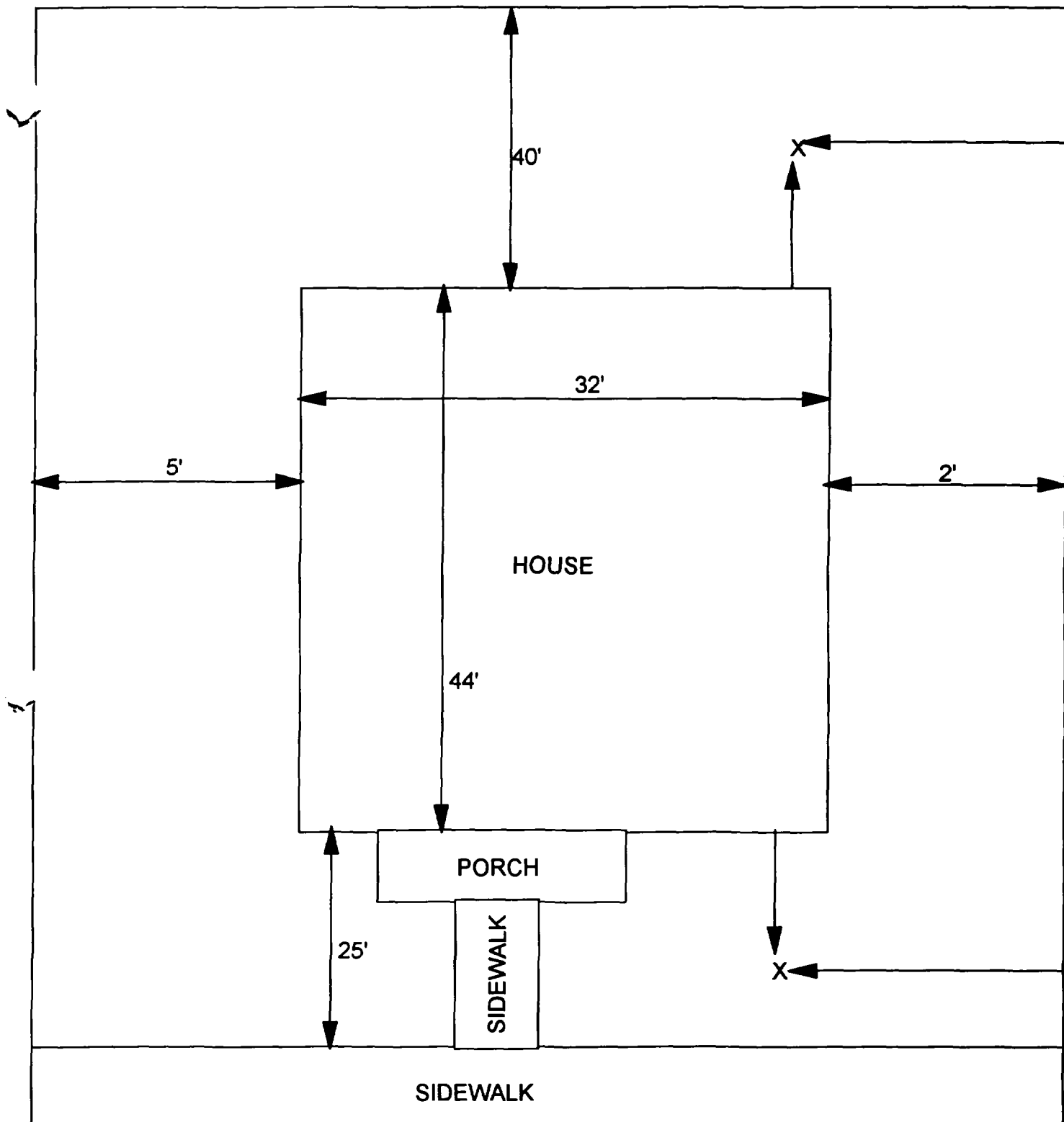
C	C	C
PPM	PPM	PPM
No.	No.	No.

1352 148  
205 64  
228 137

(

Depth
Excav.
(inch)

6



X - SAMPLE POINT

39' X 109'

**OHM**   
**Corporation**  
Findlay, Ohio

Drawn By: <b>EDJ</b>	Checked By:
Date: 10/14/98	Approved By:
Scale: <b>NTS</b>	Drawing No:

—

—

—



Action Date: 5/26/98

Loadout: 5/27/98

Restoration Begins: 5/27/98

Restoration Completed: 5/29/98

\*Easements were not sampled for verification due to the fact that a pre-determined depth for excavation was given to OHM by USACE.

\*An excavation depth of 6 inches was established by USACE prior to work commencing.

\*The excavation of special waste yielded a total of 67.09 cubic yards, which was shipped to WMI-Milam for disposal.

\*Equipment utilized during excavation:

\*TL-26

\*TCM

\*X331

\*17-KW

\*Subcontractors:

\*WMI-landfill

\*B. Garcia-trucking

\*Grantham-trucking

OHM CORPORATION  
PROJECT 20366  
GRANITE CITY, IL

QUANTITY SUMMARY FOR



SPECIAL WASTE (TONS)	BACKFILL (LOADS)	TOPSOIL (TONS)	CA-6 (TONS)	CA-7 (TONS)	SAND (TONS)	SOD CU.YDS.	CONCRETE	OTHER
15.20			14.66					

(  
**Sampling Analysis**  
**Project #20366**

0 - 3" Front and Back

	A	A	A
Street/Number	PPM	PPM	PPM
Address	No.	No.	No.

 1598

(  
3-6" Front and Back

B	B	B
PPM	PPM	PPM
No.	No.	No.

1235

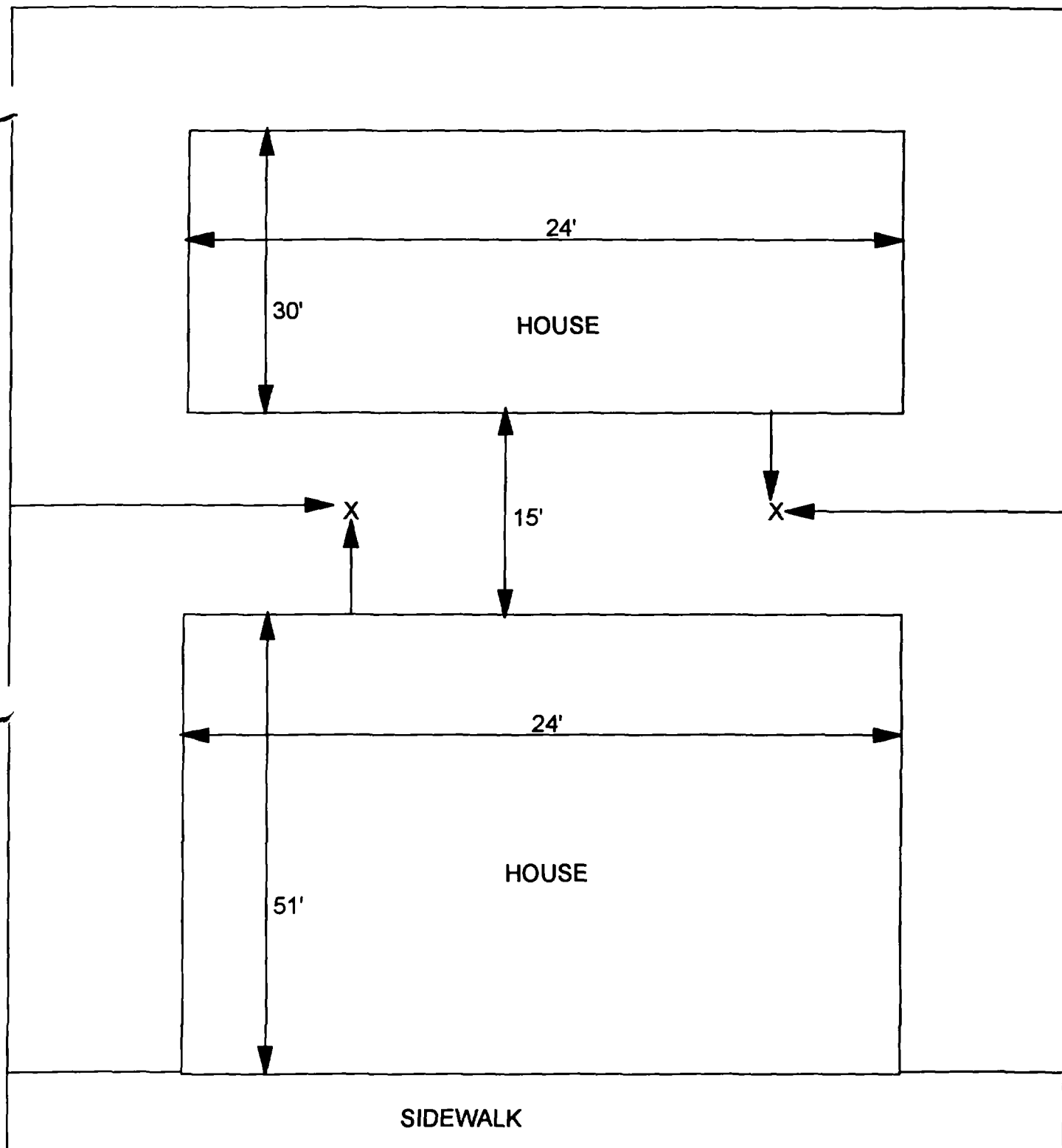
(  
6-12" Front and Back

C	C	C
PPM	PPM	PPM
No.	No.	No.

1641

Depth
Excav.
(inch)

12



X - SAMPLE POINT

24' X 95'

**OHM Corporation**  
Findlay, Ohio

Drawn By: <b>EDJ</b>	Checked By:
Date: <b>10/14/98</b>	Approved By:
Scale: <b>NTS</b>	Drawing No:

1

2

3



Action Date: 5/26/98

Loadout: 5/27/98

Restoration Begins: 5/27/98

Restoration Completed: 5/29/98

\*Easements were not sampled for verification due to the fact that a pre-determined depth for excavation was given to OHM by USACE.

\*An excavation depth of 12 inches was established by USACE prior to work commencing.

\*The excavation of special waste yielded a total of 41.12 cubic yards, which was shipped to WMI-Milam for disposal.

\*Equipment utilized during excavation:

\*TL-26

\*TCM

\*X331

\*17-KW

\*Subcontractors:

\*WMI-landfill

\*B. Garcia-trucking

\*Grantham-trucking

OHM CORPORATION  
PROJECT 20366  
GRANITE CITY, IL

QUANTITY SUMMARY FOR



SPECIAL WASTE (TONS)	BACKFILL (LOADS)	TOPSOIL (TONS)	CA-6 (TONS)	CA-7 (TONS)	SAND (TONS)	SOD CU.YDS.	CONCRETE	OTHER
53.46			57.69	14.42				

**Sampling Analysis**  
**Project #20366**

0 - 3" Front and Back

	A	A	A
Street/Number	PPM	PPM	PPM
Address	No.	No.	No.



780

3-6" Front and Back

B	B	B
PPM	PPM	PPM
No.	No.	No.

850

6-12" Front and Back

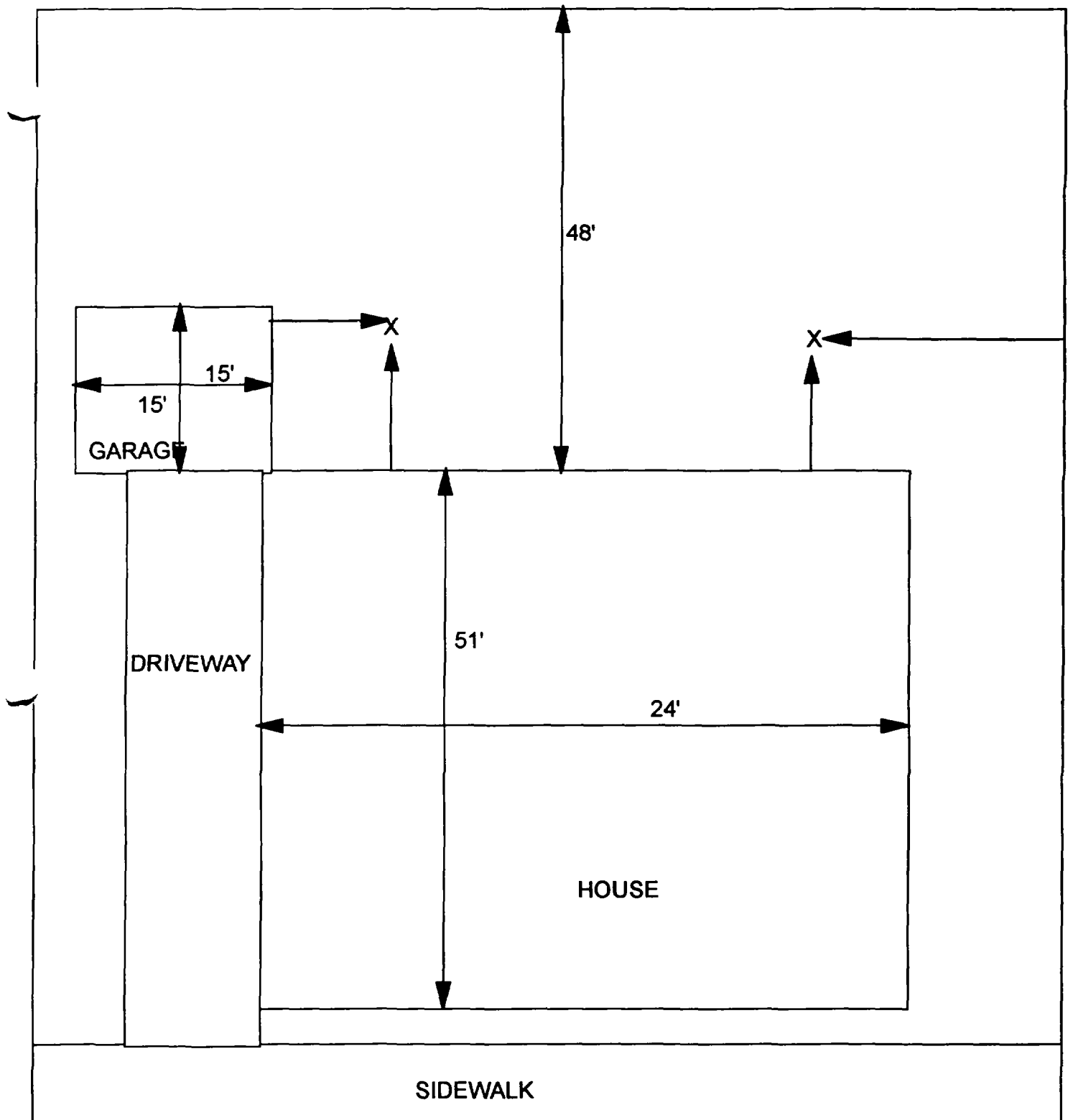
C	C	C
PPM	PPM	PPM
No.	No.	No.

730

Depth
Excav.
(inch)

12





X - SAMPLE POINT

39' X 99'

**OHM**   
**Corporation**  
 Findlay, Ohio

Drawn By: **EDJ**

Checked By:

Date: **10/14/98**

Approved By:

Scale: **NTS**

Drawing No:

—

—

—

[REDACTED]

Action Date: 6/1/98

Loadout: 6/1/98

Restoration Begins: 6/2/98

Restoration Completed: 6/2/98

\*Easements were not sampled for verification due to the fact that a pre-determined depth for excavation was given to OHM by USACE.

\*An excavation depth of 12 inches was established by USACE prior to work commencing.

\*The excavation of special waste yielded a total of 40.75 cubic yards, which was shipped to WMI-Milam for disposal.

\*Equipment utilized during excavation:

\*TL-26

\*TCM

\*X331

\*17-KW

\*Subcontractors:

\*WMI-landfill

\*B. Garcia-trucking

\*Grantham-trucking

OHM CORPORATION  
PROJECT 20366  
GRANITE CITY, IL

QUANTITY SUMMARY FOR



SPECIAL WASTE (TONS)	BACKFILL (LOADS)	TOPSOIL (TONS)	CA-6 (TONS)	CA-7 (TONS)	SAND (TONS)	SOD CU.YDS.	CONCRETE	OTHER
52.98		27.65				240		

(

**Sampling Analysis**  
**Project #20366**

0 - 3" Front and Back

	<b>A</b>	<b>A</b>	<b>A</b>
<b>Street/Number</b>	<b>PPM</b>	<b>PPM</b>	<b>PPM</b>
<b>Address</b>	<b>No.</b>	<b>No.</b>	<b>No.</b>

 **586** **580**

(

3-6" Front and Back

<b>B</b>	<b>B</b>	<b>B</b>
<b>PPM</b>	<b>PPM</b>	<b>PPM</b>
<b>No.</b>	<b>No.</b>	<b>No.</b>

**454** **1240**

6-12" Front and Back

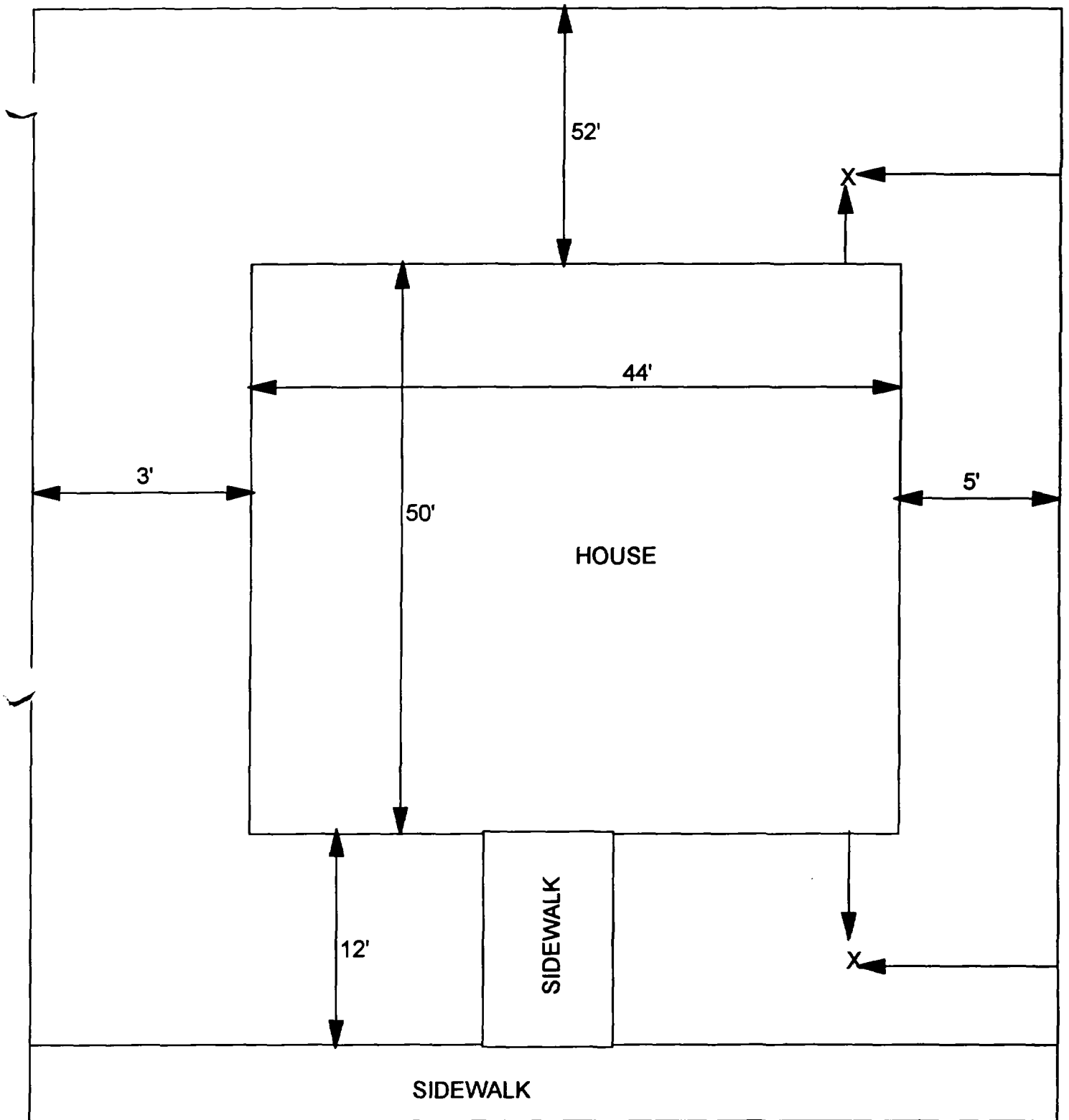
<b>C</b>	<b>C</b>	<b>C</b>
<b>PPM</b>	<b>PPM</b>	<b>PPM</b>
<b>No.</b>	<b>No.</b>	<b>No.</b>

**266** **409**

(

<b>Depth</b>
<b>Excav.</b>
<b>(inch)</b>

**12**



X - SAMPLE POINT

52' X 114'

**OHM**   
**Corporation**  
Findlay, Ohio

Drawn By: **EDJ**

Checked By:

Date: **10/14/98**

Approved By:

Scale: **NTS**

Drawing No:

—

—

—

  
Action Date: 5/26/98

Loadout: 5/29/98

Restoration Begins: 5/29/98

Restoration Completed: 5/30/98

\*Easements were not sampled for verification due to the fact that a pre-determined depth for excavation was given to OHM by USACE.

\*An excavation depth of 6 inches was established by USACE prior to work commencing.

\*The excavation of special waste yielded a total of 57.38 cubic yards, which was shipped to WMI-Milam for disposal.

\*Equipment utilized during excavation:

\*TL-26

\*TCM

\*X331

\*17-KW

\*Subcontractors:

\*WMI-landfill

\*B. Garcia-trucking

\*Grantham-trucking



OHM CORPORATION  
PROJECT 20366  
GRANITE CITY, IL

QUANTITY SUMMARY FOR



SPECIAL WASTE (TONS)	BACKFILL (LOADS)	TOPSOIL (TONS)	CA-6 (TONS)	CA-7 (TONS)	SAND (TONS)	SOD CU.YDS.	CONCRETE	OTHER
74.59		43.85	32.67			180		

**Sampling Analysis**  
**Project #20366**

0 - 3" Front and Back

	A	A	A
Street/Number	PPM	PPM	PPM
Address	No.	No.	No.



365 457

3-6" Front and Back

B	B	B
PPM	PPM	PPM
No.	No.	No.

816 1767

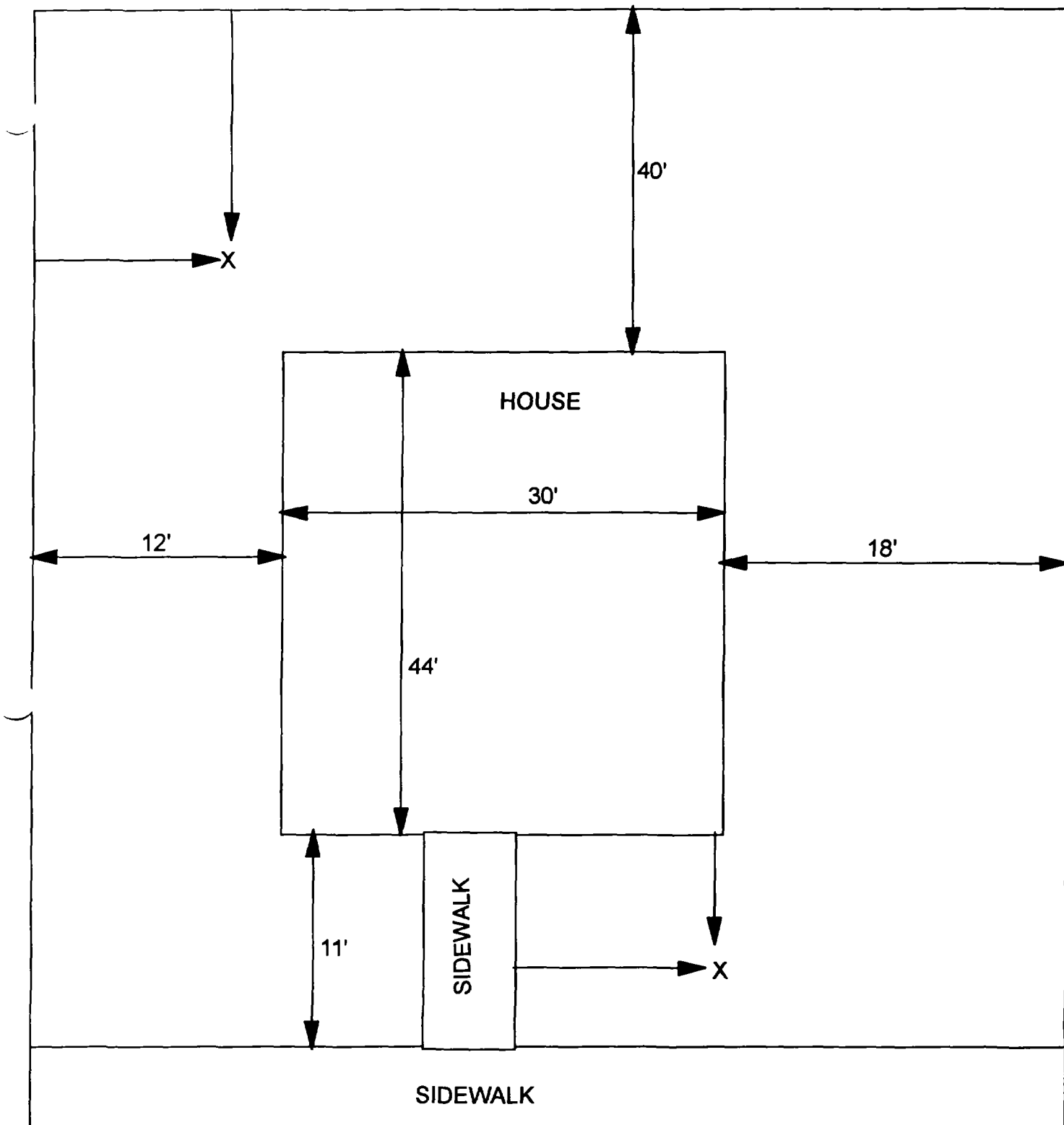
6-12" Front and Back

C	C	C
PPM	PPM	PPM
No.	No.	No.

276 341

Depth
Excav.
(inch)

6



X - SAMPLE POINT

60' X 95'

**OHM Corporation**  
Findlay, Ohio

Drawn By: <b>EDJ</b>	Checked By:
Date: <b>10/14/98</b>	Approved By:
Scale: <b>NTS</b>	Drawing No:





Action Date: 6/3/98

Loadout: 6/15/98

Restoration Begins: 6/15/98

Restoration Completed: 6/18/98

\*Easements were not sampled for verification due to the fact that a pre-determined depth for excavation was given to OHM by USACE.

\*An excavation depth of 3 inches was established by USACE prior to work commencing.

\*The excavation of special waste yielded a total of 53.85 cubic yards, which was shipped to WMI-Milam for disposal.

\*Equipment utilized during excavation:

\*TL-26

\*TCM

\*X331

\*17-KW

\*Subcontractors:

\*WMI-landfill

\*B. Garcia-trucking

\*Grantham-trucking

OHM CORPORATION  
PROJECT 20366  
GRANITE CITY, IL

QUANTITY SUMMARY FOR




SPECIAL WASTE (TONS)	BACKFILL (LOADS)	TOPSOIL (TONS)	CA-6 (TONS)	CA-7 (TONS)	SAND (TONS)	SOD CU.YDS.	CONCRETE	OTHER
70.01	2	15.15	73.31			180		

(

**Sampling Analysis  
Project #20366**

0 - 3" Front and Back

	<b>A</b>	<b>A</b>	<b>A</b>
<b>Street/Number</b>	<b>PPM</b>	<b>PPM</b>	<b>PPM</b>
<b>Address</b>	<b>No.</b>	<b>No.</b>	<b>No.</b>

 335 329  
564 248  
413 131

(

3-6" Front and Back

<b>B</b>	<b>B</b>	<b>B</b>
<b>PPM</b>	<b>PPM</b>	<b>PPM</b>
<b>No.</b>	<b>No.</b>	<b>No.</b>

273 258  
217 220

6-12" Front and Back

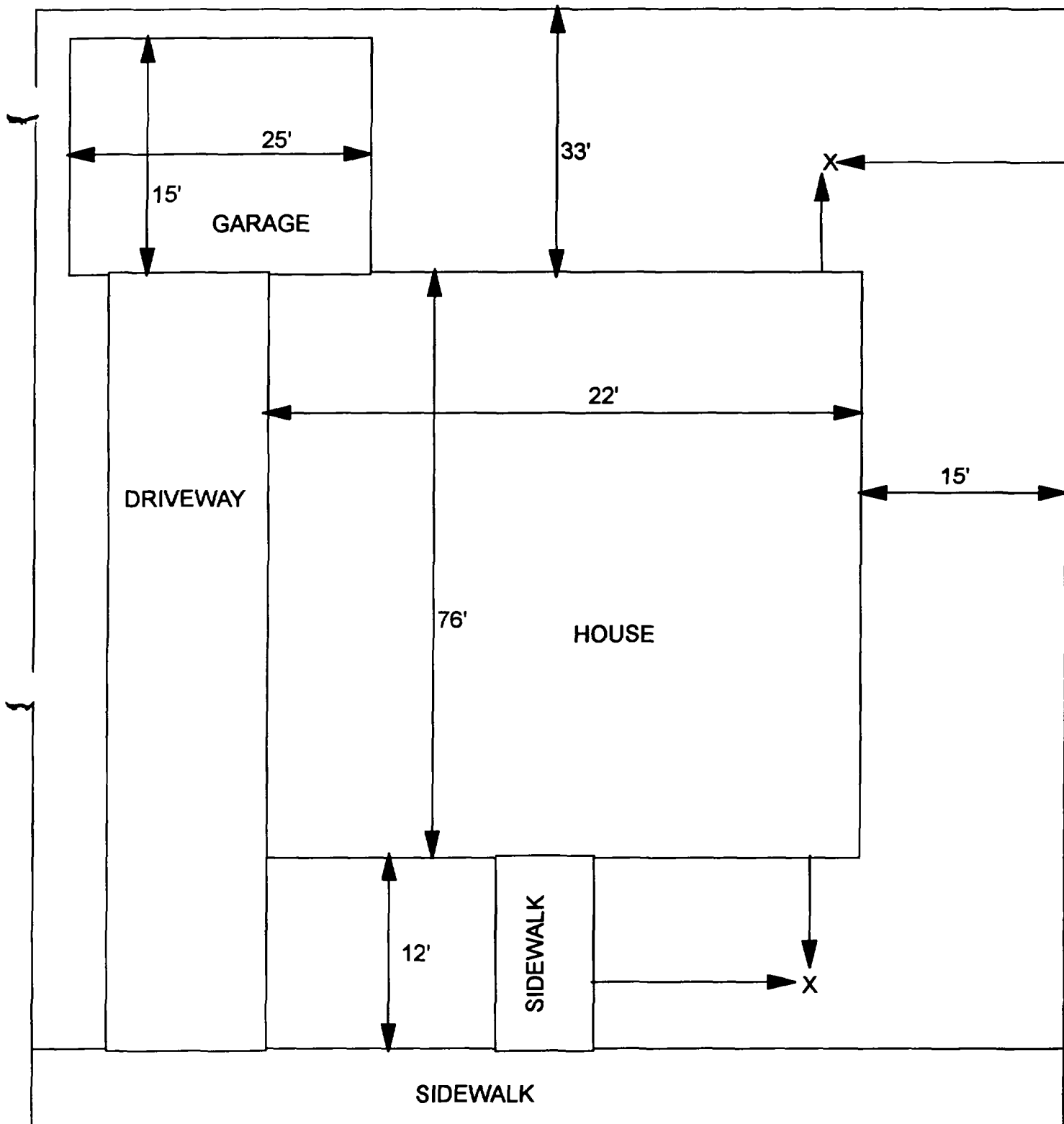
<b>C</b>	<b>C</b>	<b>C</b>
<b>PPM</b>	<b>PPM</b>	<b>PPM</b>
<b>No.</b>	<b>No.</b>	<b>No.</b>

158 157  
92 676  
42 181

(

<b>Depth</b>
<b>Excav.</b>
<b>(inch)</b>

3



X - SAMPLE POINT

57' X 121'

**OHM Corporation**  
Findley, Ohio

Drawn By: **EDJ**

Checked By:

Date: **10/14/98**

Approved By:

Scale: **NTS**

Drawing No:





[REDACTED]

Action Date: 6/2/98

Loadout: 6/2/98

Restoration Begins: 6/3/98

Restoration Completed: 6/3/98

\*Easements were not sampled for verification due to the fact that a pre-determined depth for excavation was given to OHM by USACE.

\*An excavation depth of 3 inches was established by USACE prior to work commencing.

\*The excavation of special waste yielded a total of 30.58 cubic yards, which was shipped to WMI-Milam for disposal.

\*Equipment utilized during excavation:

\*TL-26

\*TCM

\*X331

\*17-KW

\*Subcontractors:

\*WMI-landfill

\*B. Garcia-trucking

\*Grantham-trucking

OHM CORPORATION  
PROJECT 20366  
GRANITE CITY, IL

QUANTITY SUMMARY FOR

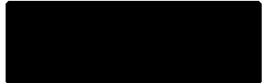


SPECIAL WASTE (TONS)	BACKFILL (LOADS)	TOPSOIL (TONS)	CA-6 (TONS)	CA-7 (TONS)	SAND (TONS)	SOD CU.YDS.	CONCRETE	OTHER
39.75		29.41	14.07	28.03		120		

**Sampling Analysis**  
**Project #20366**

0 - 3" Front and Back

	A	A	A
Street/Number	PPM	PPM	PPM
Address	No.	No.	No.



339    **622**  
240    **633**

3-6" Front and Back

B	B	B
PPM	PPM	PPM
No.	No.	No.

396    246

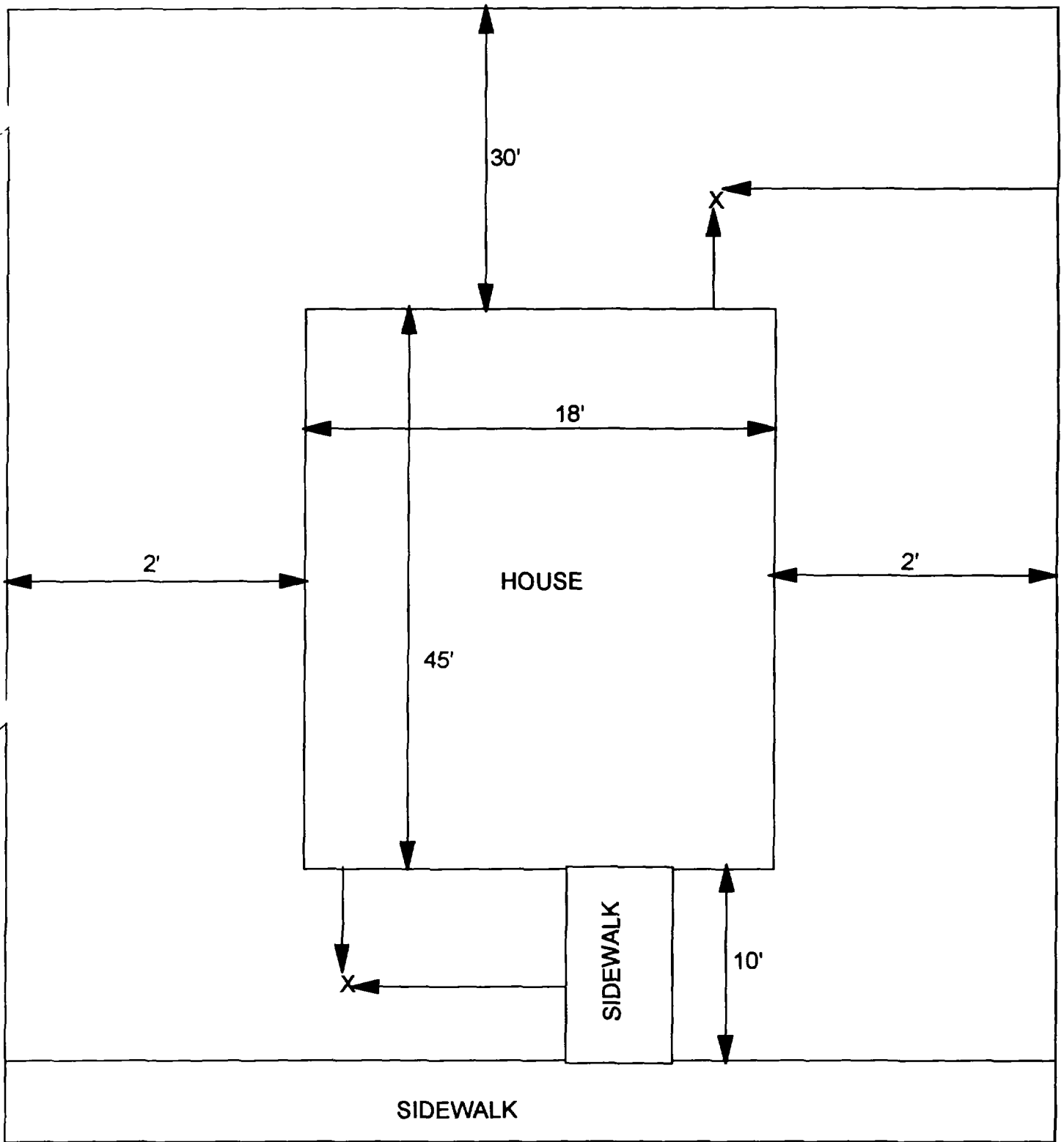
6-12" Front and Back

C	C	C
PPM	PPM	PPM
No.	No.	No.

374    96

Depth
Excav.
(inch)

3



X - SAMPLE POINT

22' X 85'

**OHM**  
**Corporation**  
Findlay, Ohio

Drawn By: **EDJ**

Date: **10/14/98**

Scale: **NTS**

Checked By:

Approved By:

Drawing No:



[REDACTED]

Action Date: 5/26/98

Loadout: 5/27/98

Restoration Begins: 5/27/98

Restoration Completed: 5/30/98

\*Easements were not sampled for verification due to the fact that a pre-determined depth for excavation was given to OHM by USACE.

\*An excavation depth of 6 inches was established by USACE prior to work commencing.

\*The excavation of special waste yielded a total of 54.99 cubic yards, which was shipped to WMI-Milam for disposal.

\*Equipment utilized during excavation:

\*TL-26

\*TCM

\*X331

\*17-KW

\*Subcontractors:

\*WMI-landfill

\*B. Garcia-trucking

\*Grantham-trucking

OHM CORPORATION  
PROJECT 20366  
GRANITE CITY, IL

QUANTITY SUMMARY FOR



SPECIAL WASTE (TONS)	BACKFILL (LOADS)	TOPSOIL (TONS)	CA-6 (TONS)	CA-7 (TONS)	SAND (TONS)	SOD CU.YDS.	CONCRETE	OTHER
71.49		42.60				360		



**Sampling Analysis  
Project #20366**

0 - 3" Front and Back

	A	A	A
Street/Number	PPM	PPM	PPM
Address	No.	No.	No.

620 767

3-6" Front and Back

B	B	B
PPM	PPM	PPM
No.	No.	No.

432 688

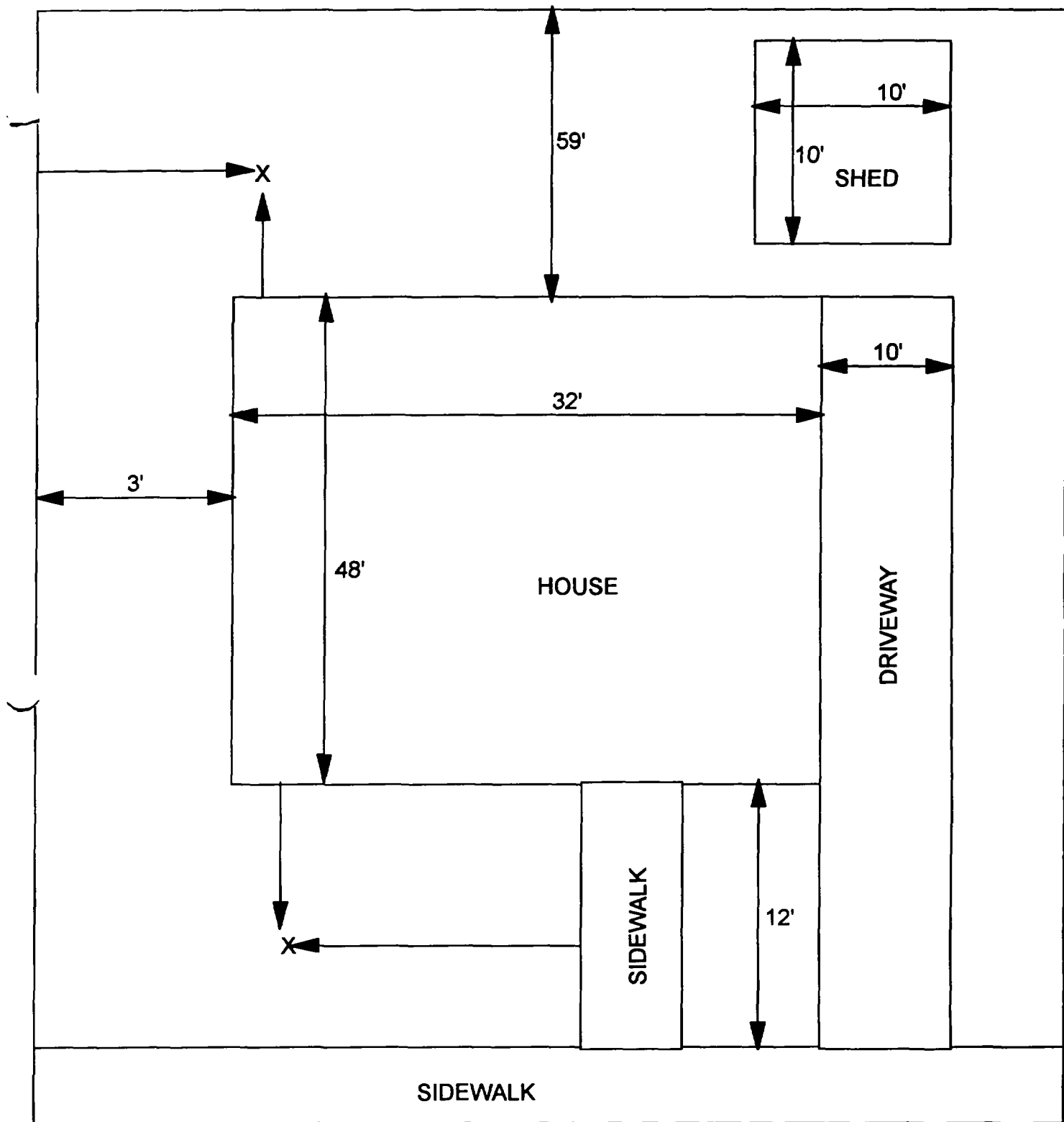
6-12" Front and Back

C	C	C
PPM	PPM	PPM
No.	No.	No.

119 284

Depth
Excav.
(inch)

6



X - SAMPLE POINT

45' X 119'

**OHM Corporation**  
Findlay, Ohio

Drawn By: <b>EDJ</b>	Checked By:
Date: <b>10/14/98</b>	Approved By:
Scale: <b>NTS</b>	Drawing No:



**Action Date: 1/23/98**

**Loadout: 1/23/98**

**Restoration Begins: 1/26/98**

**Restoration Completed: 1/26/98**

**\*Easements were not sampled for verification due to the fact that a pre-determined depth for excavation was given to OHM by USACE.**

**\*An excavation depth of 6 inches was established by USACE prior to work commencing.**

**\*The excavation of special waste yielded a total of 66.75 cubic yards, which was shipped to WMI-Milam for disposal.**

**\*Equipment utilized during excavation:**

**\*TL-26**

**\*TCM**

**\*X331**

**\*17-KW**

**\*Subcontractors:**

**\*WMI-landfill**

**\*B. Garcia-trucking**

**\*Grantham-trucking**

OHM CORPORATION  
PROJECT 20366  
GRANITE CITY, IL

QUANTITY SUMMARY FOR

SPECIAL WASTE (TONS)	BACKFILL (LOADS)	TOPSOIL (TONS)	CA-6 (TONS)	CA-7 (TONS)	SAND (TONS)	SOD CU.YDS.	CONCRETE	OTHER
86.78	3	10.15	69.16	9.54		120		

**Sampling Analysis**  
**Project #20366**

0 - 3" Front and Back

	A	A	A
Street/Number	PPM	PPM	PPM
Address	No.	No.	No.

 545 561 672

3-6" Front and Back

B	B	B
PPM	PPM	PPM
No.	No.	No.

151 136 650  
543 1783

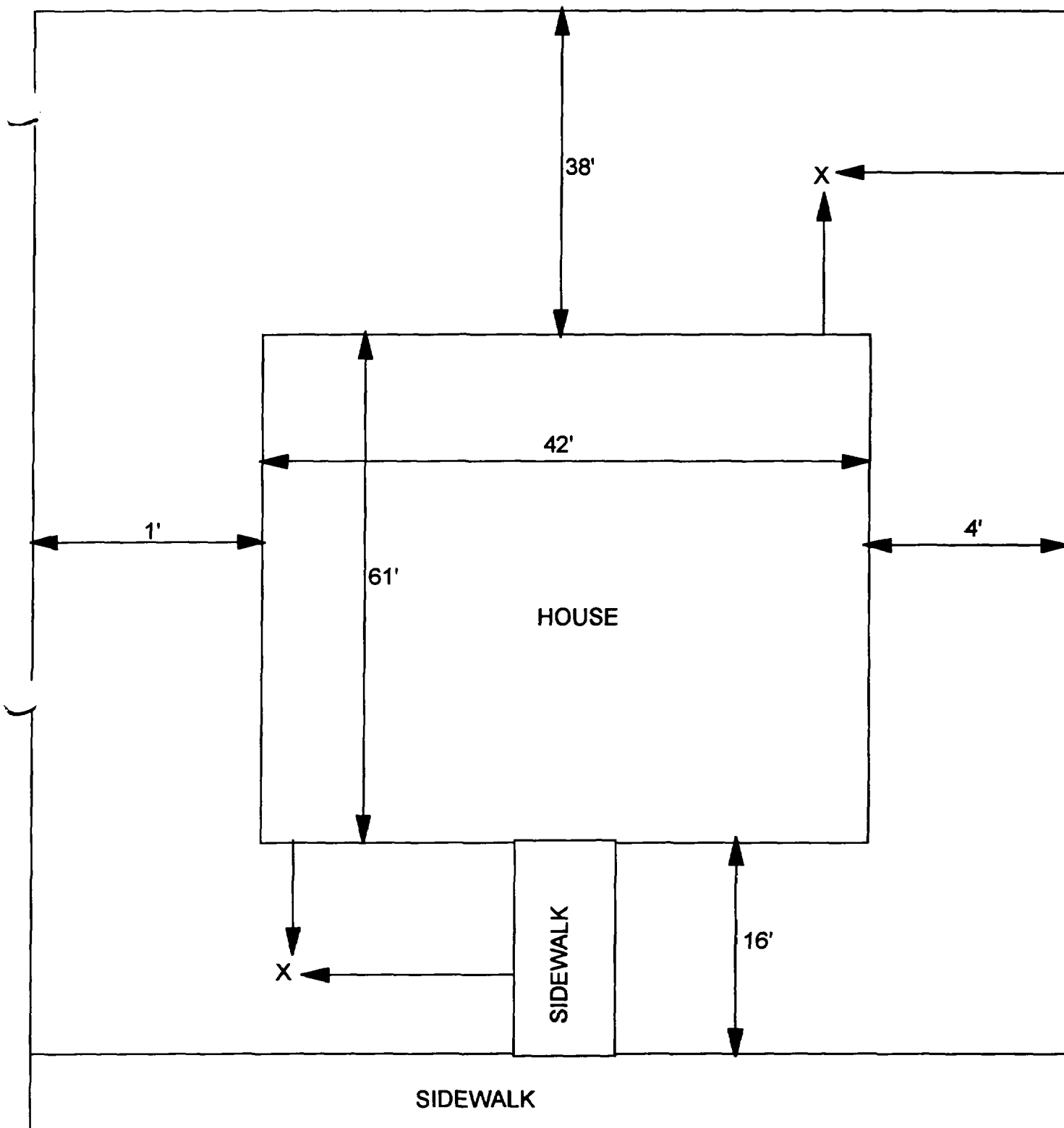
6-12" Front and Back

C	C	C
PPM	PPM	PPM
No.	No.	No.

61 89 393

Depth
Excav.
(inch)

6



X - SAMPLE POINT

47' X 115'

**OHM Corporation**  
Findlay, Ohio

Drawn By: **EDJ**

Checked By:

Date: **10/14/98**

Approved By:

Scale: **NTS**

Drawing No:

1

2

3





Action Date: 6/3/98

Loadout: 6/18/98

Restoration Begins: 6/18/98

Restoration Completed: 6/22/98

\*Easements were not sampled for verification due to the fact that a pre-determined depth for excavation was given to OHM by USACE.

\*An excavation depth of 6 inches was established by USACE prior to work commencing.

\*The excavation of special waste yielded a total of 127.90 cubic yards, which was shipped to WMI-Milam for disposal.

\*Equipment utilized during excavation:

\*TL-26

\*TCM

\*X331

\*17-KW

\*Subcontractors:

\*WMI-landfill

\*B. Garcia-trucking

\*Grantham-trucking

OHM CORPORATION  
PROJECT 20366  
GRANITE CITY, IL

QUANTITY SUMMARY FOR



SPECIAL WASTE (TONS)	BACKFILL (LOADS)	TOPSOIL (TONS)	CA-6 (TONS)	CA-7 (TONS)	SAND (TONS)	SOD CU.YDS.	CONCRETE	OTHER
166.27	14	40.14	15.79			960		

**Sampling Analysis**  
**Project #20366**

0 - 3" Front and Back

	A	A	A
Street/Number	PPM	PPM	PPM
Address	No.	No.	No.



187  
318

**646**  
62

3-6" Front and Back

B	B	B
PPM	PPM	PPM
No.	No.	No.

170  
406

**631**  
78

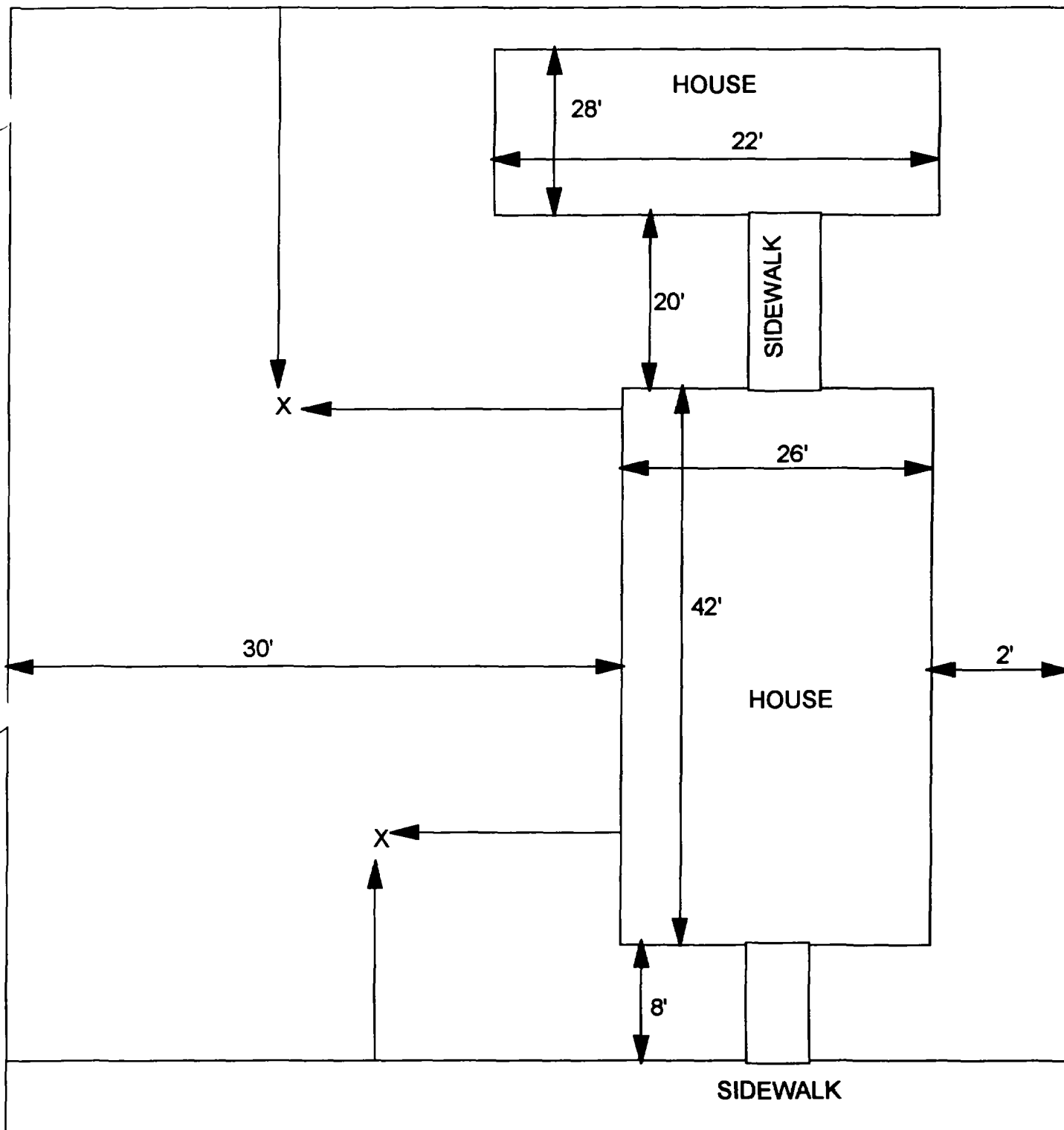
6-12" Front and Back

C	C	C
PPM	PPM	PPM
No.	No.	No.

192  
412

Depth
Excav.
(inch)

6



X - SAMPLE POINT

58' X 98'

**OHM**   
**Corporation**  
Findlay, Ohio

Drawn By: <b>EDJ</b>	Checked By:
Date: <b>10/14/98</b>	Approved By:
Scale: <b>NTS</b>	Drawing No:





Action Date: 6/3/98

Loadout: 6/15/98

Restoration Begins: 6/15/98

Restoration Completed: 6/22/98

\*Easements were not sampled for verification due to the fact that a pre-determined depth for excavation was given to OHM by USACE.

\*An excavation depth of 12 inches was established by USACE prior to work commencing.

\*The excavation of special waste yielded a total of 18.48 cubic yards, which was shipped to WMI-Milam for disposal.

\*Equipment utilized during excavation:

\*TL-26

\*TCM

\*X331

\*17-KW

\*Subcontractors:

\*WMI-landfill

\*B. Garcia-trucking

\*Grantham-trucking

OHM CORPORATION  
PROJECT 20366  
GRANITE CITY, IL

QUANTITY SUMMARY FOR



SPECIAL WASTE (TONS)	BACKFILL (LOADS)	TOPSOIL (TONS)	CA-6 (TONS)	CA-7 (TONS)	SAND (TONS)	SOD CU.YDS.	CONCRETE	OTHER
24.02	4	13.75				120		

**Sampling Analysis**  
**Project #20366**

0 - 3" Front and Back

	A	A	A
Street/Number	PPM	PPM	PPM
Address	No.	No.	No.



850 816

3-6" Front and Back

B	B	B
PPM	PPM	PPM
No.	No.	No.

947 2050

6-12" Front and Back

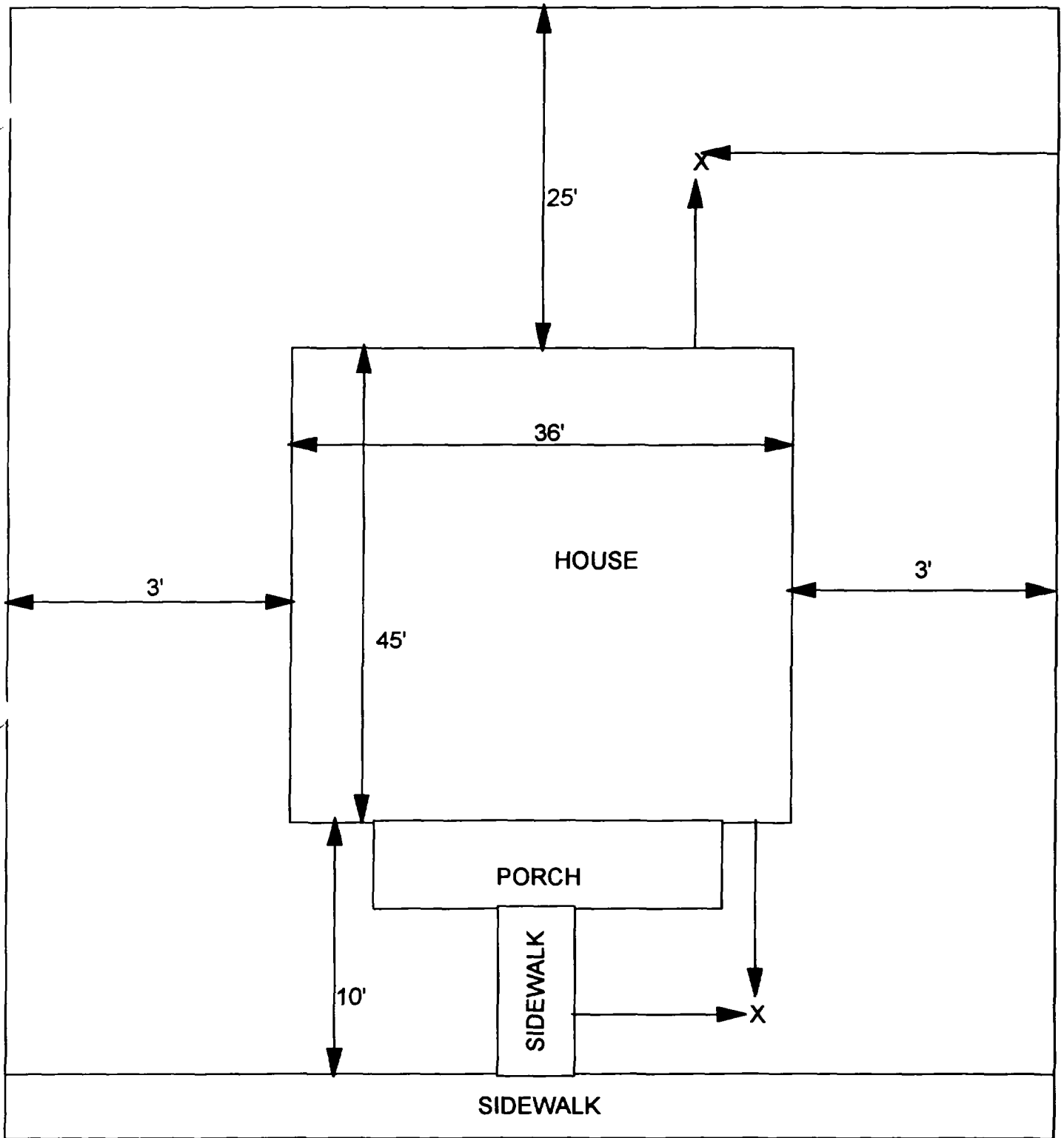
C	C	C
PPM	PPM	PPM
No.	No.	No.

812 986


Depth
Excav.
(inch)

12





X - SAMPLE POINT

<div data-bbox="852 1723 1112 1808" style="background-color: black; width: 160px; height: 40px; margin-bottom: 5px;"></div> <div data-bbox="885 1791 1019 1830" style="text-align: center;">42" X 80"</div>	<div data-bbox="1177 1702 1364 1819" style="text-align: center;"> <b>OHM</b>   <b>Corporation</b>  <small>Findlay, Ohio</small> </div> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Drawn By: <b>EDJ</b></td> <td style="padding: 2px;">Checked By:</td> </tr> <tr> <td style="padding: 2px;">Date: <b>10/14/98</b></td> <td style="padding: 2px;">Approved By:</td> </tr> <tr> <td style="padding: 2px;">Scale: <b>NTS</b></td> <td style="padding: 2px;">Drawing No:</td> </tr> </table>	Drawn By: <b>EDJ</b>	Checked By:	Date: <b>10/14/98</b>	Approved By:	Scale: <b>NTS</b>	Drawing No:
Drawn By: <b>EDJ</b>	Checked By:						
Date: <b>10/14/98</b>	Approved By:						
Scale: <b>NTS</b>	Drawing No:						



[REDACTED]

Action Date: 5/26/98

Loadout: 5/28/98

Restoration Begins: 5/28/98

Restoration Completed: 6/2/98

\*Easements were not sampled for verification due to the fact that a pre-determined depth for excavation was given to OHM by USACE.

\*An excavation depth of 12 inches was established by USACE prior to work commencing.

\*The excavation of special waste yielded a total of 342.12 cubic yards, which was shipped to WMI-Milam for disposal.

\*Equipment utilized during excavation:

\*TL-26

\*TCM

\*X331

\*17-KW

\*Subcontractors:

\*WMI-landfill

\*B. Garcia-trucking

\*Grantham-trucking

OHM CORPORATION  
PROJECT 20366  
GRANITE CITY, IL

QUANTITY SUMMARY FOR



SPECIAL WASTE (TONS)	BACKFILL (LOADS)	TOPSOIL (TONS)	CA-6 (TONS)	CA-7 (TONS)	SAND (TONS)	SOD CU.YDS.	CONCRETE	OTHER
444.76	25	68.80	158.75	28.09		510		

**Sampling Analysis  
Project #20366**

0 - 3" Front and Back

	A	A	A
Street/Number	PPM	PPM	PPM
Address	No.	No.	No.



335 35  
934 393  
422 441

3-6" Front and Back

B	B	B
PPM	PPM	PPM
No.	No.	No.

348 34  
998 232  
372 2210

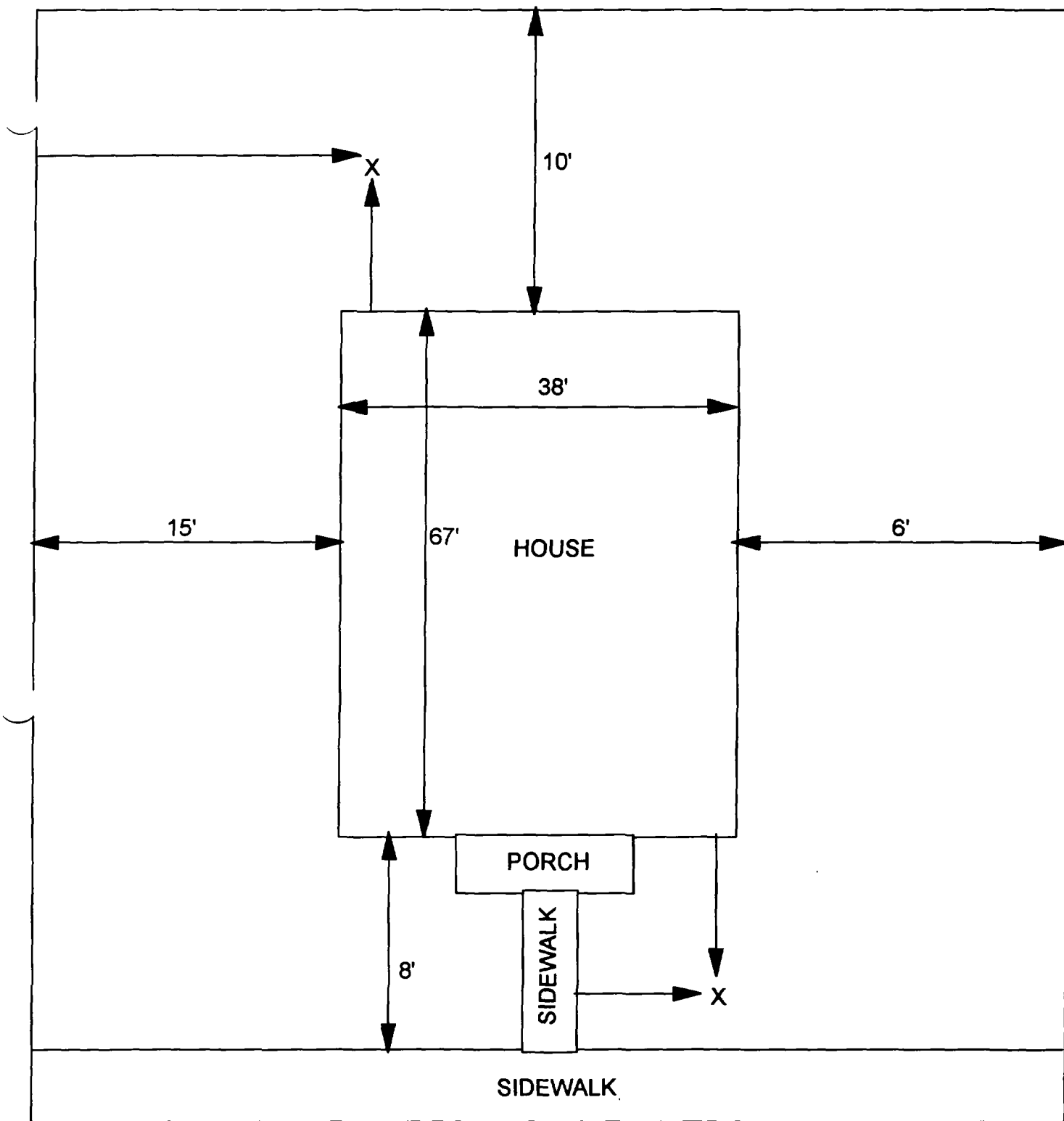
6-12" Front and Back

C	C	C
PPM	PPM	PPM
No.	No.	No.

192 41  
698 203  
298 3116

Depth
Excav.
(inch)

12



X - SAMPLE POINT



**OHM**   
**Corporation**  
Findlay, Ohio

Drawn By: <b>EDJ</b>	Checked By:
Date: <b>10/14/98</b>	Approved By:
Scale: <b>NTS</b>	Drawing No:



Action Date: 5/28/98

Loadout: 6/1/98

Restoration Begins: 6/1/98

Restoration Completed: 6/3/98

\*Easements were not sampled for verification due to the fact that a pre-determined depth for excavation was given to OHM by USACE.

\*An excavation depth of 6 inches was established by USACE prior to work commencing.

\*The excavation of special waste yielded a total of 42.03 cubic yards, which was shipped to WMI-Milam for disposal.

\*Equipment utilized during excavation:

\*TL-26

\*TCM

\*X331

\*17-KW

\*Subcontractors:

\*WMI-landfill

\*B. Garcia-trucking

\*Grantham-trucking



OHM CORPORATION  
PROJECT 20366  
GRANITE CITY, IL

QUANTITY SUMMARY FOR



SPECIAL WASTE (TONS)	BACKFILL (LOADS)	TOPSOIL (TONS)	CA-6 (TONS)	CA-7 (TONS)	SAND (TONS)	SOD CU.YDS.	CONCRETE	OTHER
54.64	2	13.75				420		

**Sampling Analysis**  
**Project #20366**

0 - 3" Front and Back

	A	A	A
Street/Number	PPM	PPM	PPM
Address	No.	No.	No.



505 789

3-6" Front and Back

B	B	B
PPM	PPM	PPM
No.	No.	No.

454 1180

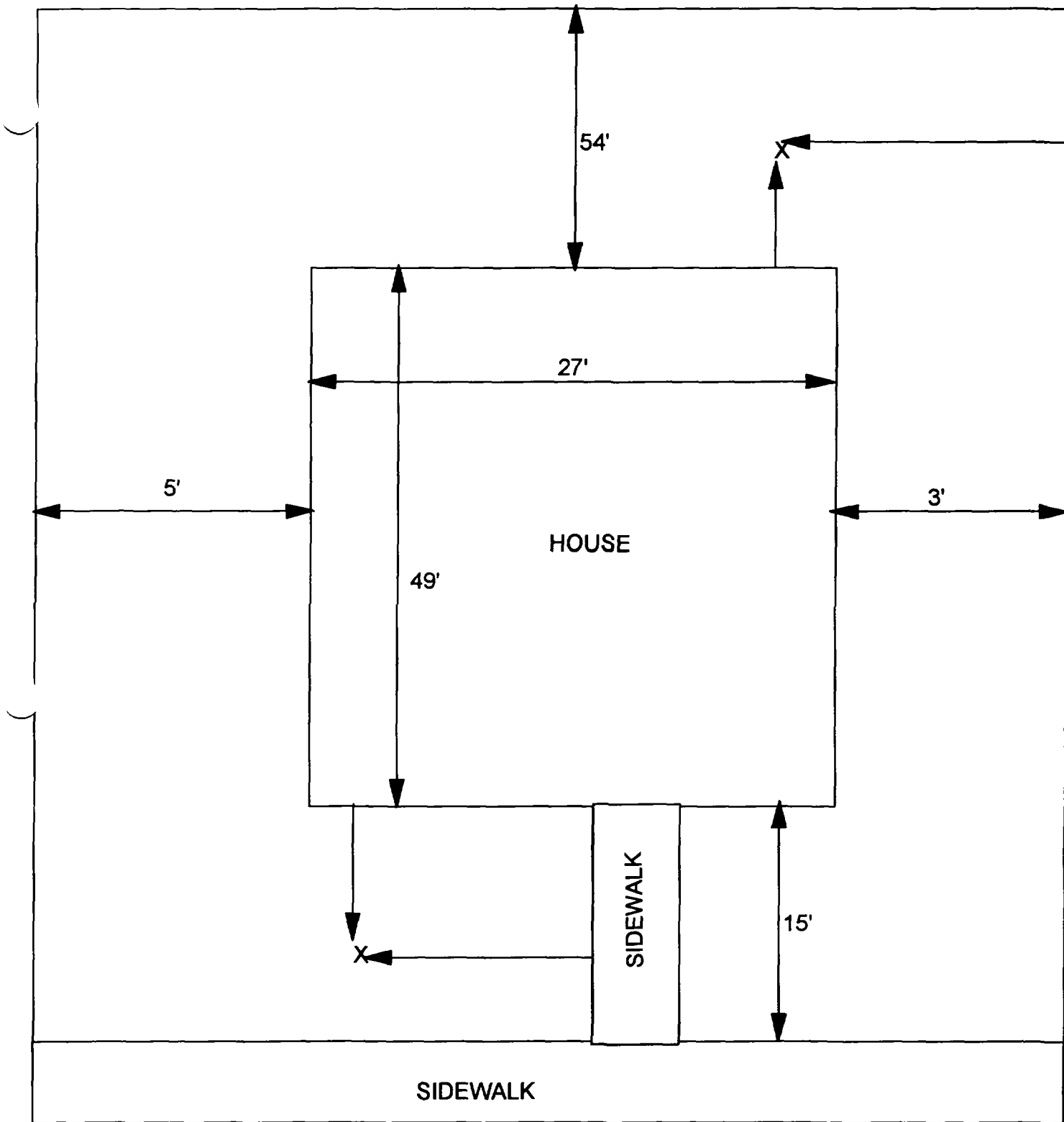
6-12" Front and Back

C	C	C
PPM	PPM	PPM
No.	No.	No.


195 439

Depth
Excav.
(inch)

6



X - SAMPLE POINT

 35' X 118'	<b>OHM Corporation</b> Findley, Ohio	
	Drawn By: <b>EDJ</b>	Checked By:
	Date: <b>10/14/98</b>	Approved By:
	Scale: <b>NTS</b>	Drawing No:





Action Date: 5/26/98

Loadout: 5/28/98

Restoration Begins: 5/28/98

Restoration Completed: 6/1/98

\*Easements were not sampled for verification due to the fact that a pre-determined depth for excavation was given to OHM by USACE.

\*An excavation depth of 6 inches was established by USACE prior to work commencing.

\*The excavation of special waste yielded a total of 320.08 cubic yards, which was shipped to WMI-Milam for disposal.

\*Equipment utilized during excavation:

\*TL-26

\*TCM

\*X331

\*17-KW

\*Subcontractors:

\*WMI-landfill

\*B. Garcia-trucking

\*Grantham-trucking

OHM CORPORATION  
PROJECT 20366  
GRANITE CITY, IL

QUANTITY SUMMARY FOR



SPECIAL WASTE (TONS)	BACKFILL (LOADS)	TOPSOIL (TONS)	CA-6 (TONS)	CA-7 (TONS)	SAND (TONS)	SOD CU.YDS.	CONCRETE	OTHER
416.10	52	43.80	30.51	14.93		510		

**Sampling Analysis**  
**Project #20366**

0 - 3" Front and Back

	A	A	A
Street/Number	PPM	PPM	PPM
Address	No.	No.	No.



89      **594**  
145      **671**

3-6" Front and Back

B	B	B
PPM	PPM	PPM
No.	No.	No.

26      **541**  
181      444

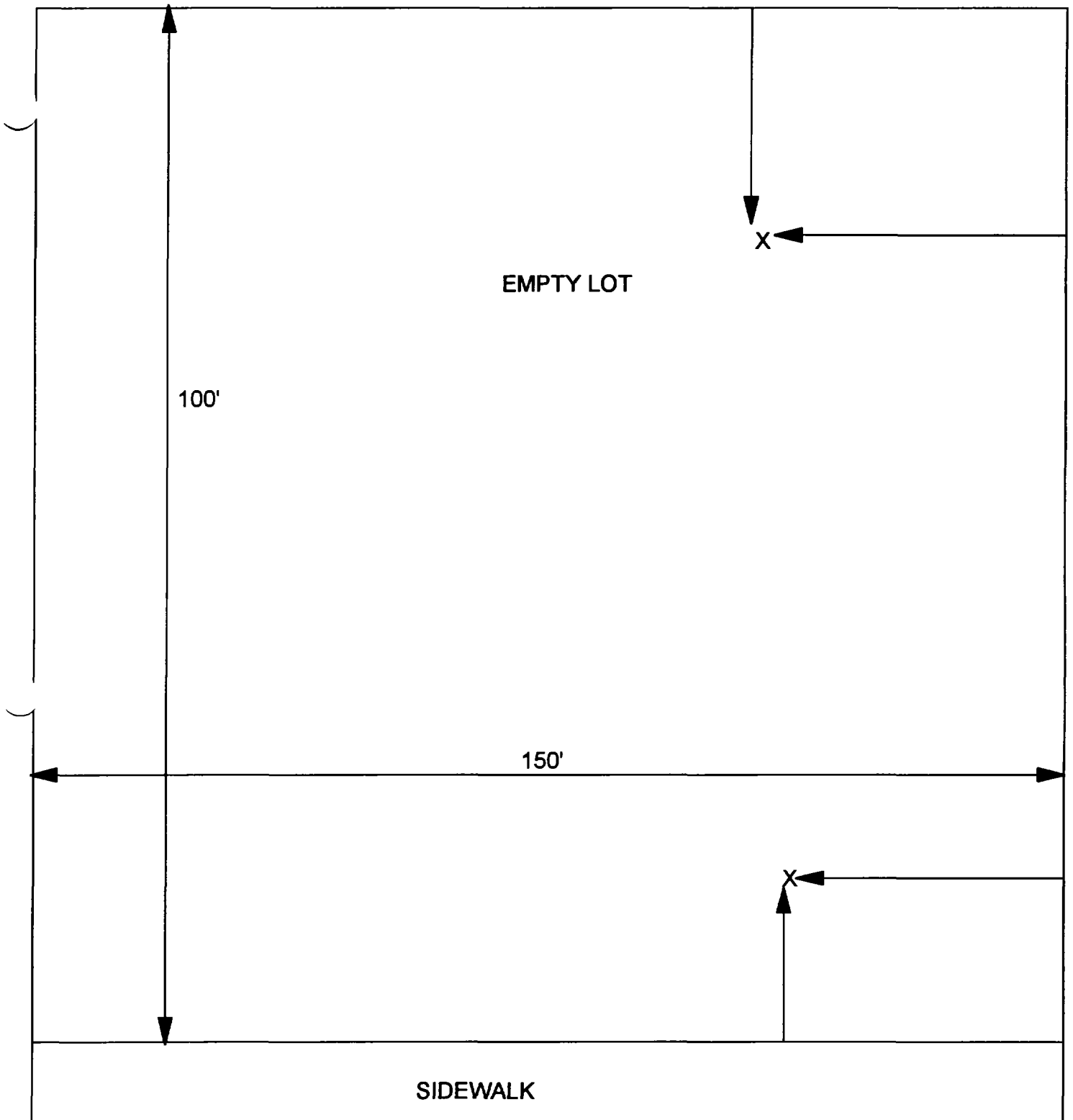
6-12" Front and Back

C	C	C
PPM	PPM	PPM
No.	No.	No.

19      260

Depth
Excav.
(inch)

6



X - SAMPLE POINT

**150' X 100'**

**OHM**   
**Corporation**  
Findlay, Ohio

Drawn By: **EDJ**

Checked By:

Date: **10/14/98**

Approved By:

Scale: **NTS**

Drawing No:







Action Date: 6/1/98

Loadout: 6/3/98

Restoration Begins: 6/3/98

Restoration Completed: 6/22/98

\*Easements were not sampled for verification due to the fact that a pre-determined depth for excavation was given to OHM by USACE.

\*An excavation depth of 6 inches was established by USACE prior to work commencing.

\*The excavation of special waste yielded a total of 67.09 cubic yards, which was shipped to WMI-Milam for disposal.

\*Equipment utilized during excavation:

\*TL-26

\*TCM

\*X331

\*17-KW

\*Subcontractors:

\*WMI-landfill

\*B. Garcia-trucking

\*Grantham-trucking

OHM CORPORATION  
PROJECT 20366  
GRANITE CITY, IL

QUANTITY SUMMARY FOR



SPECIAL WASTE (TONS)	BACKFILL (LOADS)	TOPSOIL (TONS)	CA-6 (TONS)	CA-7 (TONS)	SAND (TONS)	SOD CU.YDS.	CONCRETE	OTHER
32.54		38.65				180		

**Sampling Analysis**  
**Project #20366**

0 - 3" Front and Back

	A	A	A
Street/Number	PPM	PPM	PPM
Address	No.	No.	No.



326 658  
1093 1120

3-6" Front and Back

B	B	B
PPM	PPM	PPM
No.	No.	No.

327 512  
603 510

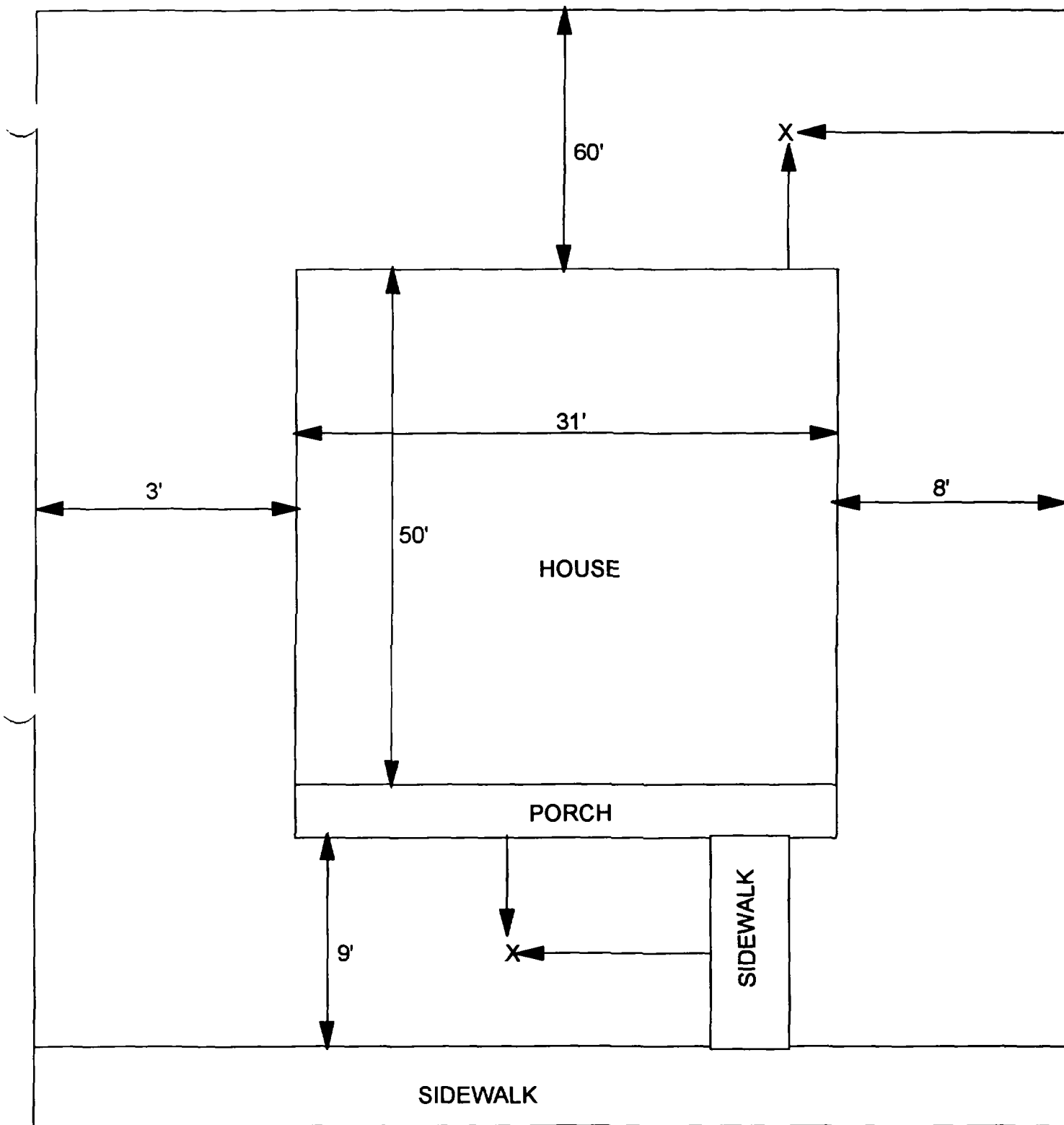
6-12" Front and Back

C	C	C
PPM	PPM	PPM
No.	No.	No.

148 103

Depth
Excav.
(inch)

6



X - SAMPLE POINT

42' X 119'

**OHM**   
**Corporation**  
 Findlay, Ohio

Drawn By: <b>EDJ</b>	Checked By:
Date: 10/14/98	Approved By:
Scale: <b>NTS</b>	Drawing No:

✓

✓

✓



Action Date: 6/8/98

Loadout: 6/13/98

Restoration Begins: 6/13/98

Restoration Completed: 6/22/98

\*Easements were not sampled for verification due to the fact that a pre-determined depth for excavation was given to OHM by USACE.

\*An excavation depth of 6 inches was established by USACE prior to work commencing.

\*The excavation of special waste yielded a total of 55.15 cubic yards, which was shipped to WMI-Milam for disposal.

\*Equipment utilized during excavation:

\*TL-26

\*TCM

\*X331

\*17-KW

\*Subcontractors:

\*WMI-landfill

\*B. Garcia-trucking

\*Grantham-trucking

OHM CORPORATION  
PROJECT 20366  
GRANITE CITY, IL

QUANTITY SUMMARY FOR



SPECIAL WASTE (TONS)	BACKFILL (LOADS)	TOPSOIL (TONS)	CA-6 (TONS)	CA-7 (TONS)	SAND (TONS)	SOD CU.YDS.	CONCRETE	OTHER
71.70	3		30.95	29.24		240		



**Sampling Analysis**  
**Project #20366**

0 - 3" Front and Back

	A	A	A
Street/Number	PPM	PPM	PPM
Address	No.	No.	No.

222 347

3-6" Front and Back

B	B	B
PPM	PPM	PPM
No.	No.	No.

617 363  
489 252

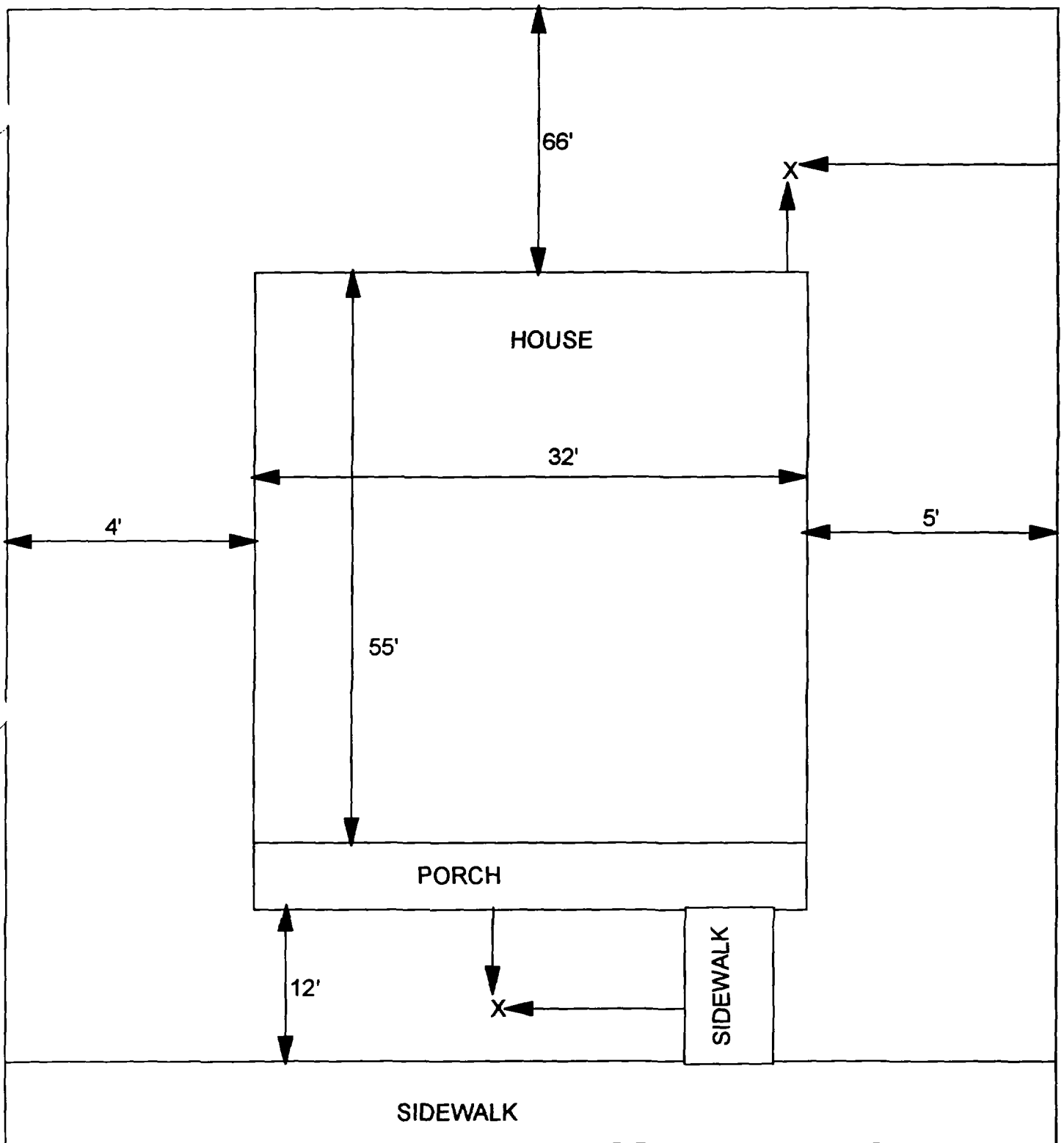
6-12" Front and Back

C	C	C
PPM	PPM	PPM
No.	No.	No.

457 233

Depth
Excav.
(inch)

6



X - SAMPLE POINT

41' X 133'

**OHM**   
**Corporation**  
Findlay, Ohio

Drawn By: **EDJ**

Checked By:

Date: **10/14/98**

Approved By:

Scale: **NTS**

Drawing No:





Action Date: 6/8/98

Loadout: 6/18/98

Restoration Begins: 6/18/98

Restoration Completed: 6/24/98

\*Easements were not sampled for verification due to the fact that a pre-determined depth for excavation was given to OHM by USACE.

\*An excavation depth of 3 inches was established by USACE prior to work commencing.

\*The excavation of special waste yielded a total of 116.70 cubic yards, which was shipped to WMI-Milam for disposal.

\*Equipment utilized during excavation:

\*TL-26

\*TCM

\*X331

\*17-KW

\*Subcontractors:

\*WMI-landfill

\*B. Garcia-trucking

\*Grantham-trucking

(

(

(

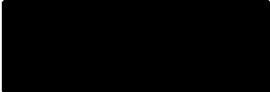
OHM CORPORATION  
PROJECT 20366  
GRANITE CITY, IL

QUANTITY SUMMARY FOR



SPECIAL WASTE (TONS)	BACKFILL (LOADS)	TOPSOIL (TONS)	CA-6 (TONS)	CA-7 (TONS)	SAND (TONS)	SOD CU.YDS.	CONCRETE	OTHER
151.71	6	69.50	52.45	43.26		780		

**Sampling Analysis**  
**Project #20366**

0 - 3" Front and Back			
	A	A	A
Street/Number	PPM	PPM	PPM
Address	No.	No.	No.
	232	1157	
	30	30	
	435	504	

3-6" Front and Back		
B	B	B
PPM	PPM	PPM
No.	No.	No.

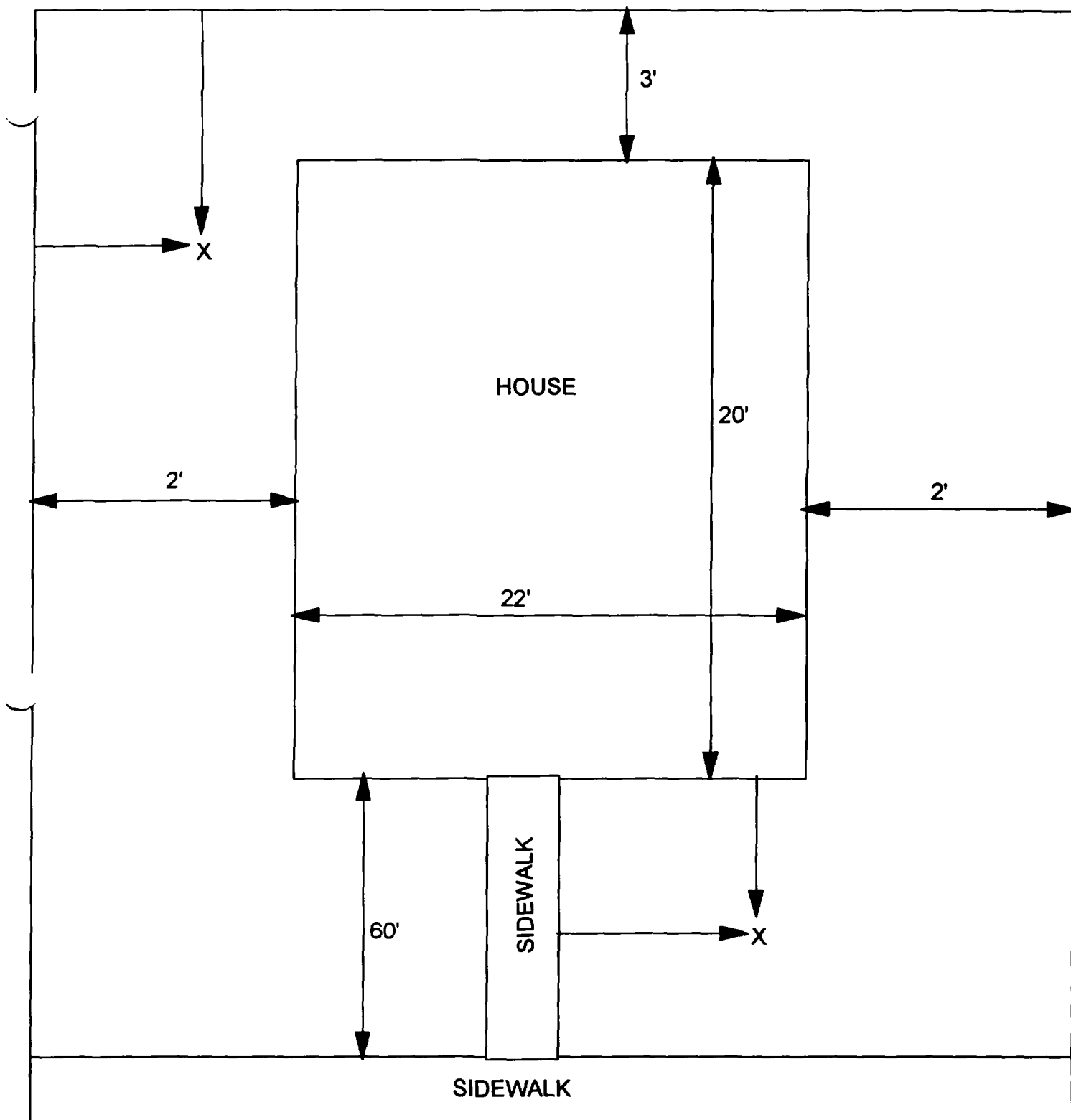
149      406

6-12" Front and Back		
C	C	C
PPM	PPM	PPM
No.	No.	No.

75      417

Depth
Excav.
(inch)

3



X - SAMPLE POINT



26' X 88'

**OHM**   
**Corporation**  
Findlay, Ohio

Drawn By: **EDJ**

Checked By:

Date: **10/14/98**

Approved By:

Scale: **NTS**

Drawing No:







Action Date: 6/3/98

Loadout: 6/13/98

Restoration Begins: 6/13/98

Restoration Completed: 6/19/98

\*Easements were not sampled for verification due to the fact that a pre-determined depth for excavation was given to OHM by USACE.

\*An excavation depth of 6 inches was established by USACE prior to work commencing.

\*The excavation of special waste yielded a total of 63.80 cubic yards, which was shipped to WMI-Milam for disposal.

\*Equipment utilized during excavation:

\*TL-26

\*TCM

\*X331

\*17-KW

\*Subcontractors:

\*WMI-landfill

\*B. Garcia-trucking

\*Grantham-trucking

OHM CORPORATION  
PROJECT 20366  
GRANITE CITY, IL

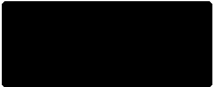
QUANTITY SUMMARY FOR



SPECIAL WASTE (TONS)	BACKFILL (LOADS)	TOPSOIL (TONS)	CA-6 (TONS)	CA-7 (TONS)	SAND (TONS)	SOD CU.YDS.	CONCRETE	OTHER
82.94	8	43.00				600		

**Sampling Analysis**  
**Project #20366**

	0 - 3" Front and Back		
	A	A	A
Street/Number	PPM	PPM	PPM
Address	No.	No.	No.



471 272

3-6" Front and Back		
B	B	B
PPM	PPM	PPM
No.	No.	No.

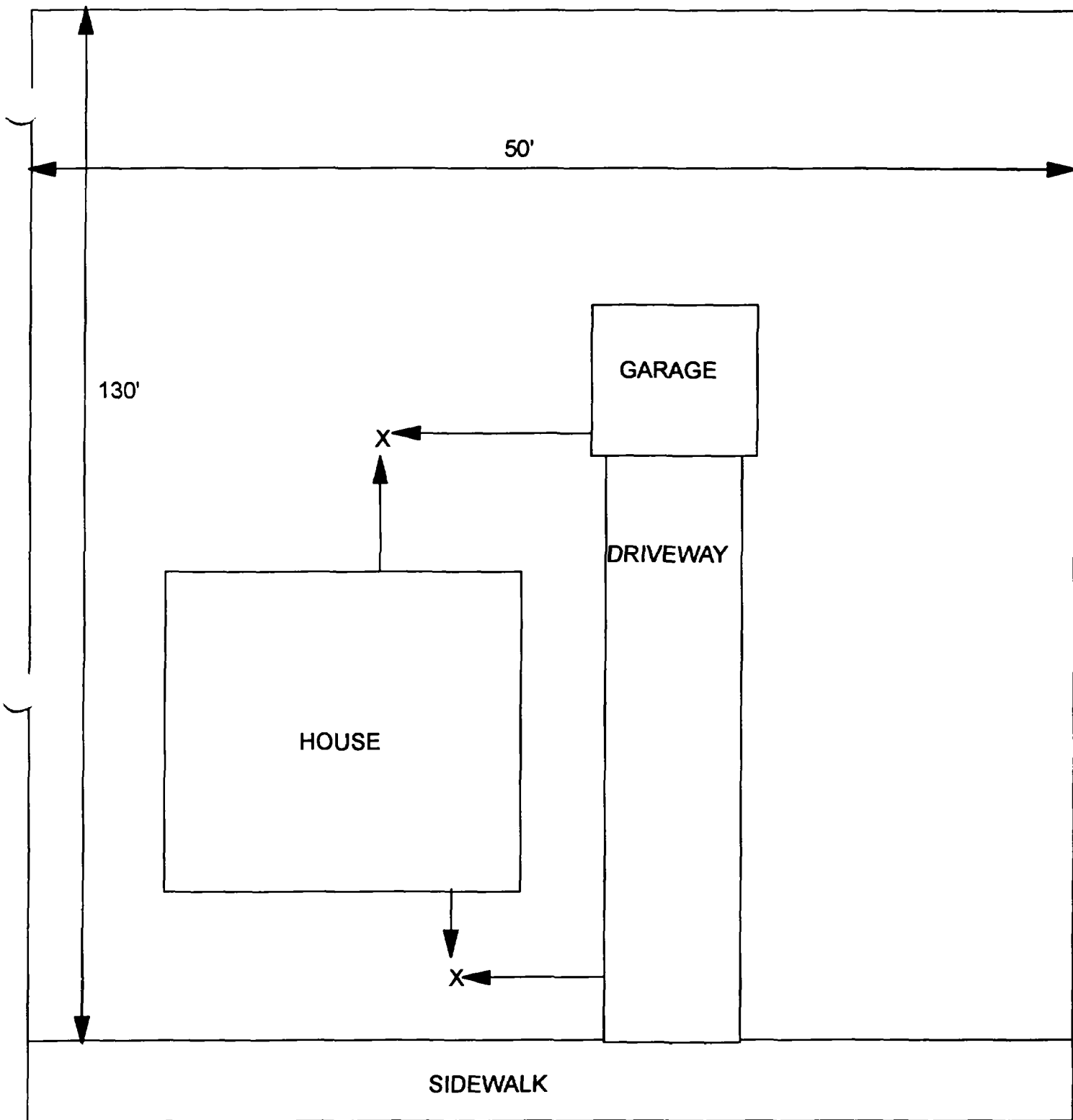
287 845  
188 58910

6-12" Front and Back		
C	C	C
PPM	PPM	PPM
No.	No.	No.


97 382

Depth
Excav.
(inch)

6



X - SAMPLE POINT

 50' X 130'		<b>OHM Corporation</b> Findley, Ohio	
Drawn By:	EDJ	Checked By:	
Date:	10/14/98	Approved By:	
Scale:	NTS	Drawing No:	

—

—

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Action Date: 6/3/98

Loadout: 6/13/98

Restoration Begins: 6/13/98

Restoration Completed: 6/19/98

\*Easements were not sampled for verification due to the fact that a pre-determined depth for excavation was given to OHM by USACE.

\*An excavation depth of 12 inches was established by USACE prior to work commencing.

\*The excavation of special waste yielded a total of 99.90 cubic yards, which was shipped to WMI-Milam for disposal.

\*Equipment utilized during excavation:

\*TL-26

\*TCM

\*X331

\*17-KW

\*Subcontractors:

\*WMI-landfill

\*B. Garcia-trucking

\*Grantham-trucking

OHM CORPORATION  
PROJECT 20366  
GRANITE CITY, IL

QUANTITY SUMMARY FOR



SPECIAL WASTE (TONS)	BACKFILL (LOADS)	TOPSOIL (TONS)	CA-6 (TONS)	CA-7 (TONS)	SAND (TONS)	SOD CU.YDS.	CONCRETE	OTHER
129.87	7	171.05	15.40	14.55		546		

**Sampling Analysis**  
**Project #20366**

0 - 3" Front and Back

	<b>A</b>	<b>A</b>	<b>A</b>
<b>Street/Number</b>	<b>PPM</b>	<b>PPM</b>	<b>PPM</b>
<b>Address</b>	<b>No.</b>	<b>No.</b>	<b>No.</b>

 **1909 582**

3-6" Front and Back

<b>B</b>	<b>B</b>	<b>B</b>
<b>PPM</b>	<b>PPM</b>	<b>PPM</b>
<b>No.</b>	<b>No.</b>	<b>No.</b>

386 **712**  
409 397

6-12" Front and Back

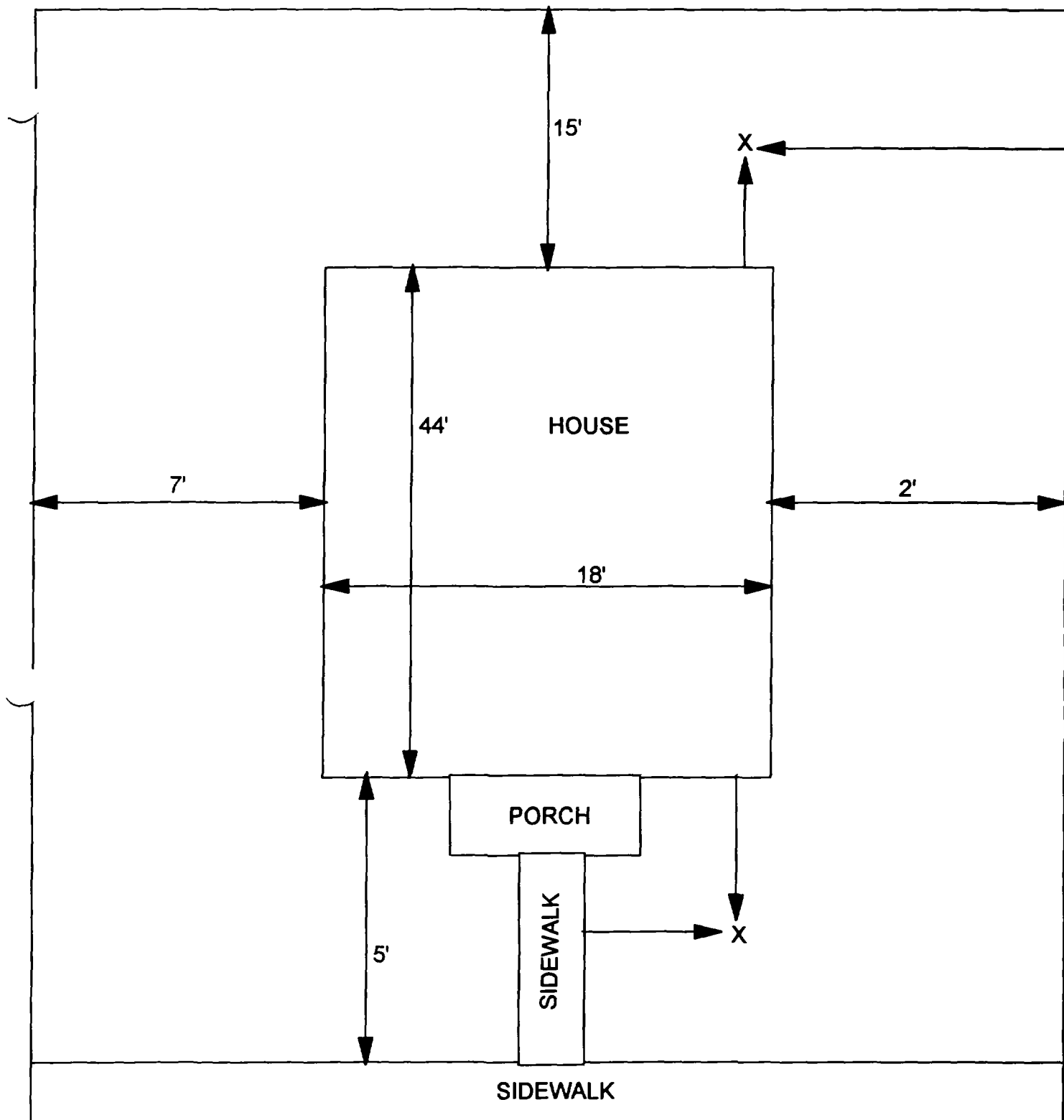
<b>C</b>	<b>C</b>	<b>C</b>
<b>PPM</b>	<b>PPM</b>	<b>PPM</b>
<b>No.</b>	<b>No.</b>	<b>No.</b>

301 **778**  
439 306

<b>Depth</b>
<b>Excav.</b>
<b>(inch)</b>

12





X - SAMPLE POINT



27' X 64'

**OHM**   
**Corporation**  
 Findlay, Ohio

Drawn By: **EDJ**

Checked By:

Date: **10/14/98**

Approved By:

Scale: **NTS**

Drawing No:

1

2

3



Action Date: 6/3/98

Loadout: 6/13/98

Restoration Begins: 6/13/98

Restoration Completed: 6/22/98

\*Easements were not sampled for verification due to the fact that a pre-determined depth for excavation was given to OHM by USACE.

\*An excavation depth of 6 inches was established by USACE prior to work commencing.

\*The excavation of special waste yielded a total of 69.18 cubic yards, which was shipped to WMI-Milam for disposal.

\*Equipment utilized during excavation:

\*TL-26

\*TCM

\*X331

\*17-KW

\*Subcontractors:

\*WMI-landfill

\*B. Garcia-trucking

\*Grantham-trucking

OHM CORPORATION  
PROJECT 20366  
GRANITE CITY, IL

QUANTITY SUMMARY FOR



SPECIAL WASTE (TONS)	BACKFILL (LOADS)	TOPSOIL (TONS)	CA-6 (TONS)	CA-7 (TONS)	SAND (TONS)	SOD CU.YDS.	CONCRETE	OTHER
89.93	6	28.90	27.43	26.07		600		

**Sampling Analysis**  
**Project #20366**

0 - 3" Front and Back

	A	A	A
Street/Number	PPM	PPM	PPM
Address	No.	No.	No.



760 248  
392 514

3-6" Front and Back

B	B	B
PPM	PPM	PPM
No.	No.	No.

540 372  
325 472

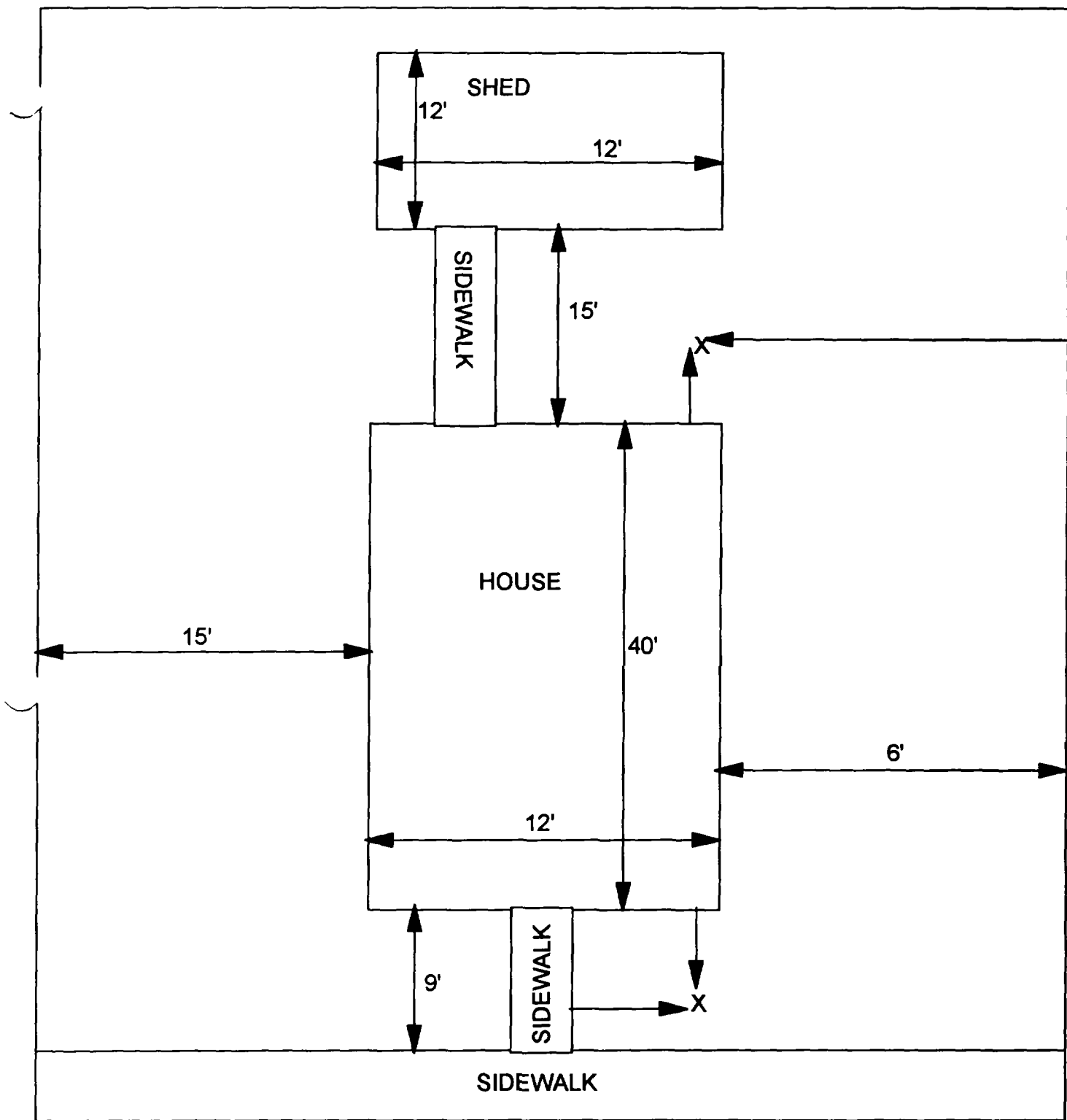
6-12" Front and Back

C	C	C
PPM	PPM	PPM
No.	No.	No.



149 204

Depth
Excav.
(inch)

6



X - SAMPLE POINT

 42' X 76'		 <b>OHM Corporation</b> Findley, Ohio	
		Drawn By: <b>EDJ</b>	Checked By:
		Date: <b>10/14/98</b>	Approved By:
		Scale: <b>NTS</b>	Drawing No:

